BRAITHWAITE'S RETROSPECT.

VOL. XXXIII. JANUARY—JUNE, 1856.

THE

RETROSPECT OF MEDICINE:

BEING

A HALF-YEARLY JOURNAL,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

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VOL. XXXIII. JANUARY—JUNE,

1856.

LONDON:

SIMPKIN, MARSHALL, AND CO.

EDINBURGH: OLIVER AND BOYD. DUBLIN: HODGES AND SMITH.

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A SYNOPSIS,

CONTAINING A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE FOLLOWING PAGES: SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

AFFECTIONS OF THE SYSTEM GENERALLY.

AGUE.—In cases of long standing, which resist the usual method of treatment, the following has been remarkably successful: ℞. Potass. iodid. ℥iss.; aquæ menth. pip. ℥xij. M. sum ℥i. 4ta. hora. (Mr. E. F. Sankey, p. 27.)

CANCER.—With regard to operation, *Encephaloid* may be more frequently removed, with relief or success, than scirrhus, especially if it occurs in the young, and is removed sufficiently early and freely. When it returns it is with extreme violence. *Scirrhus*, though often removed, is very rarely cured. When adherent, or the glands are affected, it is worse than useless to operate, relapse is certain and rapid. If very chronic and small, operation may convert a comparatively harmless tumour into an active agent of destruction. In epithelioma, the rule is to operate again and again if you can remove all. When the disease originates in mucous membrane, as the rectum, the tongue, the gums, you have but little chance of success. The application of the actual cautery after removal is a valuable aid. The cicatrix of a burn is not a favourable nidus for epithelial growths. (Dr. M. H. Collis, p. 44.)

Landolfi's treatment consists in transforming a malignant tumour into an innocent one by cauterization. His specific formula is composed of equal parts of the chlorides of bromine, zinc, gold, and antimony, mixed with a sufficient quantity of flour to form a viscid paste. The chloride of bromine is the essential ingredient. Before applying it, the healthy parts surrounding the tumour are covered with strips of cloth, smeared with cold cream; the specific paste must be spread on lint and applied to the part affected, it may be kept on for 24 hours, and when removed it must be replaced with a poultice, or dressed with basilicon ointment. (Dr. Lasegue, p. 48.)

Intermittent Fever.—The sulphate of quinidine, of the new Bogota bark (*China Bogotensis*) possesses very considerable antiperiodic powers. It may be much less expensive, and quite as certain in its effects as quinine. (Dr. C. B. Guthrie, p. 18.)

Rheumatism.—The waters of Vichy and Carlsbad are very valuable in gout, rheumatism, gravel, and affections of the liver and spleen, owing to their strong alkaline character, which is principally due to the large quantity of bicarbonate of soda which they contain; they are very mild and gentle in their operation, and not like the waters of Homburg, Weisbaden, and Kissengen, which contain chloride of sodium, and are severely purgative. (Dr. Cahill, p. 419.)

Acute.—You must be guided entirely by the specialities of the case; there are no specifics; some preparation of iron with liquor potassæ may be given. When the liver is much deranged, calomel and rhubarb; when the urine is scanty, colchicum. As tonics, quinine and iron, alone or combined, may be given. Quassia, with an alkali, suits remarkably well. Wine is the best and most efficacious tonic in weakly habits; an opiate at bedtime is sometimes necessary. Warm fomentations are the best local applications. (Dr. J. Bell, p. 39.)

Scarlet Fever.—We here give a plan of treatment, which has been peculiarly successful. In the first place you must keep the bedroom cold, be it winter or summer; throw open the windows and remove all curtains. If it be winter, allow the patient one sheet and one blanket; if summer, a sheet only to cover him. If the tonsils be much affected, apply a barm and oatmeal poultice to the throat night and morning, and give the infusion of roses with an excess of acid and sugar every three hours; avoid purgatives, at least for the first ten days; you must not purge if the bowels be not opened for a week; too free purgation in scarlet fever is a fruitful source of dropsy, disease, and death. Leeches, blisters, and baths are inadmissible. The diet must be strictly antiphlogistic for the first week; avoid broths and stimulants of every kind, but allow as much cold water as the patient chooses. In five or seven days, when the skin begins to cool, you may close the windows and allow more covering, but still do not purge. The diet must be gradually improved as recovery progresses. Another very important regulation is never to allow the patient to leave the house under the month in the summer, and under six weeks in winter. (Mr. P. H. Chavasse, p. 19.)

Typhoid Fever.—Typhoid is known by its comparatively non-contagious nature, by the less development of cerebral symptoms, by the less depression, by the scattered rose-coloured rash not persistent, constantly renewed, disappearing temporarily on pressure, and by the existence of disease of Peyer's glands, with diarrhœa, &c. (p. 3.)

In the early stage the same treatment may be adopted as recommended for typhus ; but when the abdominal disease becomes apparent, great comfort will be afforded by a large warm poultice to the belly, and afterwards counter-irritants, as blisters, sol lytæ, or warm turpentine. Internally you may give cautiously small doses of mercury, as hyd. c. creta, with pulv. ipecac. co. If the diarrhœa be very severe, the mist. cretæ co. with tin. catechu, or kino, will be found efficacious. But, perhaps, the most valuable remedy is the acetate of lead, both by the mouth and rectum, with solution of starch and some tincture of opium. (Dr. R. H. Semple, p. 7.)

Quinine is most useful in the bilious form of typhoid, when it displays a remittent character, or a tendency to relapse. It is also very valuable where the fever, although not very intense, is extremely prolonged, without any material change, it may then be given, in doses of three to five grains, three times a day. When given in large doses, it may produce cinchonism. In two cases, by Dr. Robertson, it produced coma ; in other cases it has been found to cause violent headache, and increase the tendency to coma, and hence it calms the watchfulness and delirium of fever. (Dr. T. B. Peacock, p. 9.)

Typhus Fever.—Typhus is known by being very contagious, by the greater prevalence of cerebral symptoms, by the greater depression, by the dark mulberry rash, very much resembling measles, persistent, not renewed, and not fading on pressure, and by the absence of disease of Peyer's glands. (p. 3.)

In the first place you must open the bowels with castor oil, and prescribe some stimulating diaphoretic saline. If there be delirium, shave the head and apply a blister to the neck ; if the pulse loses power and becomes rapid, beef tea and wine should be given often in small quantities ; if the symptoms of sinking increase, and the pulse be feeble and fluttering, with delirium, brandy must be given freely, and as medicine the stronger diffusible stimulants should be prescribed, as the spt. ammon. aromat., spt. æther. co., and at the same time keep up with strong beef tea. With respect to opium, it would be injurious during the early stages ; but where there is great restlessness and irritability, with great weakness, opium is invaluable : it raises the pulse, quiets the patient, and procures sleep. (Dr. R. H. Semple, p. 6.)

AFFECTIONS OF THE NERVOUS SYSTEM.

Chorea.—Blisters have often been beneficial when repeatedly applied to the extremities of the side most affected. If the chorea be intense or chronic, a blister may be applied to the back of the neck. (Dr. M. Simon, p. 81.)

Epilepsy.—Dr. Prout says that alkalies, when assisted by heat, rapidly convert urea into carbonate of ammonia. From this we may infer, that when they exist in excess in the blood, they will also prevent its elements combining so as to form it, and thus noxious matters will be retained which ought to be eliminated as urea. This, we know, will act on the brain and the spinal cord, and probably account for many of the symptoms from which epileptics suffer so much, if not for the epileptic convulsion itself. Such being the supposed cause, the greatest benefit has been derived from an acid treatment, externally, by means of the nitro-muriatic acid bath, for twenty minutes every night, and by giving twenty minims of the dilute nitro-muriatic acid twice a day, a compound rhubuarb pill every night, and allowing subacid fruits, lemon juice, vinegar, &c. This treatment, by acids, has been tried with wonderful success in many cases which had for years been considered hopeless, and in which almost every thing likely to relieve had been tried without success. In the cases where it has been most beneficial, there has been a deficiency of urea in the urine, and a cloud of phosphates deposited on boiling. (p. 56.)

From the uniform deficiency of organic principles, as urea, and the excess of mineral matters, especially chloride of sodium, in the urine, we may infer that they must have some connection with the state of the blood and the disease in question, as cause and effect; this is supported by the results of the acid treatment, which, asit corrects the abnormal state of the urine, cures the disease. (Dr. H. Hunt, p. 66.)

Epilepsy, Chorea, &c.—The oxide of zinc is very useful as a tonic and antispasmodic in all cases of general nervous debility. It may be given without the slightest fear of danger, in doses gradually increased from fifteen to thirty grains daily. (Dr. W. Marcet, p. 70.)

Oxide of zinc and oxide of silver are now very extensively used in nervous affections. The most agreeable form of the medicine is the syrup of the iodide of zinc. Do not mistake hysteria for epilepsy; in the latter the loss of consciousness is extreme, but not in hysteria. (*Lancet, Dec.* 29, 1855, p. 626.)

Chronic Hydrocephalus.—As a last resource, you may tap with a common trocar, and inject two or three ounces of a solution of tincture of iodine (fourteen minims to two ounces), previously heated to the temperature of the body. It is not attended with the danger which at first sight might be supposed, and it will have a very perceptible effect in controlling the secretion. (Dr. J. M. Winn, p. 78.)

AFFECTIONS OF THE CIRCULATORY ORGANS.

Aneurism *of the Innominata.*—These are cases where you can do no good by operative interference. If the tumour project, you must apply steady firm pressure over it, by means of a suitable pad; the effect of this will be to thicken and strengthen the coats of the artery, and may be very beneficial in preventing its increasing. (Mr. F. C. Skey, p. 226.)

Auscultation.—The influence of pressure may produce, intensify, or modify certain sounds heard over the præcordial region; therefore, when you apply the stethoscope over the base of the heart, be careful not to exercise much pressure, or you may produce a murmur very much simulating that of valvular disease, and I am inclined to think, that systolic basic endocardial murmurs, so heard, have their origin in the pulmonary artery. The pressure may be produced either by the patient in expiration, or by the physician, and it is a common cause of the basic systolic murmur heard in anæmia; but it may sometimes be similarly produced when the patient is not anæmic. The conditions favouring this are, narrowness of the chest from before backwards, flexibility of the thoracic parietes, and anæmia. (Dr. W. Jenner, p. 95.)

Hæmoptysis.—The only remedies to be trusted, in severe cases are, turpentine, gallic acid, chloride of sodium, or nitre with digitalis; acetate of lead, or alum, is not sufficient to meet the danger. You may give ten to thirty drops of turpentine, every hour, and, especially in weak cachectic individuals; it is less suitable for the young, and plethoric. Gallic acid is preferable to other astringents, because it does not exert the same dessicating and constipating effects as tannin, &c. If you give chloride of sodium, one to two and a half drachms will be the dose. (M. Aran, p. 94.)

Hemorrhagic Diathesis.—The indications are threefold, viz.—1st. To invigorate the powers of assimilation, and healthy sanguification. 2nd. To supply rich, plastic, tissue-forming materials. 3rd. To arrest and prevent the hemorrhage. You must put the patient at once on full diet—mutton chop, eggs, and milk; and you may give as medicine, the following, three or four times a day: Acid. gallic. gr. v.; acid. sulph. dil. ℥xx.; dec. cinchonæ ℥iss. If the hemorrhage be from the mouth, apply turpentine with a sponge, three times a day. If the surface of the skin is extensively ecchymosed, give acid. sulph. dil., ferri. sulph., and inf. calumbæ; and if there be restlessness, morphia at night. (Dr. H. Salter, p. 84.)

Varicose Veins.—The best of all plans for treating these troublesome cases, is to make about a dozen small issues with the potash paste, along the course of the enlarged venous trunks. Their vari-

cose condition disappears with the healing of the issues. (Mr. F. C. Skey, pp. 227 and 437.)

Ligature of.—The operation will be quite safe, if the needle pass *beneath* the vein, the only precaution necessary being not to transfix the vein, or suppurative phlebitis may be set up. (Mr. Erichsen, p. 437.)

AFFECTIONS OF THE RESPIRATORY ORGANS.

Artificial Respiration, *New Method of.*—The patient must be placed in the prone position, so that the tongue may fall forwards, and leave the glottis patent; the body must then be turned fully on one side, and again slowly replaced on the stomach. These movements must be made alternately, gently, and equably, *sixteen* times in a minute. When laid on the stomach, pressure is made on the thorax and abdomen, and expiration takes place; when turned on the side, pressure is removed, and inspiration follows; and thus respiration is efficiently performed, and this without bellows, syringe, or any apparatus, all of which are not only unnecessary, but dangerous. (Dr. Marshall Hall, p. 111.)

Asphyxia.—The special remedy is the restoration of respiration. To elevate the temperature, or to accelerate the circulation, by the warm bath and other means, without having first secured the return of respiration tends not to save but to destroy life. It is a well established fact, that an animal bears the suspension of respiration in proportion, not to the warmth, but within certain limits to the lowness of the temperature. The only remedy is artificial respiration; and the only method of effecting this properly is to place the patient on his belly, in the prone position, so that the tongue may fall forwards, and not obstruct the passage through the glottis, which it would do in the supine position, by falling backwards. Again, when the body is in the prone position, the thorax and abdomen will be compressed, and expiration will take place; let the body be now turned gently on the side, through rather more than the quarter of a circle; by this the pressure will be removed, and effectual inspiration take place.

Instead of the rules adopted by the Royal Humane Society, the following are proposed:—

1. Send for medical aid, clothing, &c.
2. Treat the patient on the spot.
3. Place the patient gently on the face, to allow any fluids to flow from the mouth.
4. Raise the patient, and endeavour to excite respiration by snuff, hartshorn, tickling the fauces, &c.; if these fail, lose no time, but—

5. Replace the patient on his face, that the tongue may fall forwards, and leave the windpipe free, then turn the body completely on the side and a little more; and then again on the face, alternately, to induce inspiration and expiration, sixteen times in the minute. Rub all the limbs and trunk, energetically, with the warm hands, upwards, making firm pressure;—

6. Omit the warm bath, until respiration is re-established. (Dr. Marshall Hall, p. 108.)

The actual cautery, when properly applied, is far superior to all other means to bring about reaction,—it is the most speedy and certain in its action, and may be used so long as there is the slightest respiratory movement. Deep and long parallel lines must be traced by a strongly-heated iron along the upper and lateral parts of the chest, opposite the four or five upper ribs. By this means, the general sensibility may be aroused, after every other remedy has failed. (M. Faure, p. 113.)

Chronic Bronchitis.—We believe the attacks of this disease to be often nervous and spasmodic rather than inflammatory, and the aim of our treatment should not be to increase the secretion, but to remove the nervous condition on which the cough, secretion, dyspnœa, and tightness depend. For this purpose banish expectorants, and give small doses of morphia, say the 1-16th of a grain, four times a day. As a preliminary step, remove all sources of irritation, and attend to the liver and bowels. (Dr. E. Smith, p. 128.)

Consolidated Lungs.—In cases of this kind, from pneumonia, the following is found to be the most effectual plan of treatment:—Wine, six ounces, daily; a draught every third hour, composed of julep of acetate of ammonia, with aromatic spirits of ammonia in excess; and strong turpentine stupes, carefully applied, every night and morning, over the back of the chest and site of the consolidated lung. Diet moderately stimulating. (Dr. Todd, p. 124.)

Hooping Cough.—This is essentially a nervous disease, and our treatment must be directed to the removal of the spasm. The secretion which is present is chiefly due to the violence of the cough, and consequently should not be increased by expectorants. You must remove all sources of irritation, give nutritious food, remove to a pure air, and give morphia to relieve the spasm. The dose to begin with must be very small, (say the sixty-fourth of a grain to an infant four months old), and rapidly increase the quantity until a slight drowsiness is perceptible, and then regard that as the measure of the dose; this effect must be maintained, and in the course of a few days the spasm will cease, the cough be relieved, and the child will soon be well. (Dr. E. Smith, p. 127.)

Phthisis.—Dr. Addison believes it to be nothing more than the acute stage of strumous pneumonia. Mere tubercles may lie dormant for years, if inflammation of an active kind be not set up (Dr. Addison, p. 120.)

Pleuritic Effusions.—Nature, if assisted by proper remedies, as mild diuretics, composed of digitalis and squills, with alteratives and large blisters to the chest, will often remove serous effusions from the pleura. Paracentesis thoracis is one of the worst and most deceiving operations in general practice. A serous cavity will almost invariably be changed into a cavity pouring out pus, in almost incredible quantities, and beyond the power of the system to stand against. (Dr. Addison, p. 126.)

Stethoscope, *New Form of.*—The sounds of the chest will be rendered much more intense and distinct, by using an instrument having two ear peices instead of one. This may be made of gutta percha; the ear pieces may be attached to curved tubes, diverging from, but continuous with a single tube, having the usual bell-shaped extremity. (Dr. A. Leared, p. 119.)

AFFECTIONS OF THE DIGESTIVE ORGANS,

Catarrh of the Stomach.—This generally occurs in drunkards, and in the treatment of it you must first remove the exciting cause. The diet must be regular and nutritious, and you may give some bitter infusion, with a drachm of the tincture of the same three times a-day. To relieve bilious congestion and constipation, give five grains of inspissated ox-gall, with three grains of extract rhubarb at night. Opium, or the tincture of cannabis Indica, with aromatic spirit of ammonia, may be necessary to procure sleep. You must also make the patient take good solid nourishing food, free from osmazone, as chickens, rabbits, sheep's trotters, &c., with boiled rice, &c. Dilution of the contents of the stomach, before breakfast, to wash out the mucus and allow of the application of remedies, is very important. As astringents, we may use acetate of lead, sulphate of zinc, sulphate of alum, or the mineral acids. The nitrate of bismuth is very efficacious in restraining secretion, it may be combined with prussic acid, opium, or chalk; it has a soothing effect on the irritated mucous membrane, especially if there be vomiting or any inflammatory complications of the chest. (Dr. Lees, p. 138.)

Charcoal, *Medicinal Properties of.*—Pure charcoal is very useful in those disorders of the mucous membranes when the secretions are inordinate in quantity, or offensive in condition, as in the bowel affections of children, or the early stages of diarrhœa, in doses of ten or fifteen grains, combined with other remedies, it acts like a charm; it may be given in larger doses, say 30 or 40 grains in gas-

tralgia, and seldom fails to give relief. In excessive ptyalism, it speedily moderates the discharge and corrects the fœtor ; also, when there are small painful ulcers within the mouth, on the lips, cheeks, &c., applied as a wash, with mel. rosæ, &c., it has proved eminently serviceable. (Mr. J. Bird, pp. 156 and 416.)

Cholera.—If in collapse, apply the hot wet sheets and hot turpentine frictions. During convalescence, mustard over the kidneys to promote the secretion of urine. Gallic acid, in five-grain doses, with one grain of calomel after every evacuation, is the staple remedy ; for the severe vomiting, give the subnitrate of bismuth and carbonate of soda, or aromatic spirit of ammonia, sulphuric æther, and laudanum. At the same time support by new milk, broths, &c. (Dr. D. Jamison, p. 416.)

We must extinguish and destroy the noxious poison at its source. First, by causing the dejections of cholera patients to be received into vessels containing a solution of chloride of zinc. Second, by daily flooding drains, privies, &c., with chemical agents of the same class. (Dr. Budd, Bristol, Edin. Med. Journal, Dec. 1855, p. 471.)

Gastritis, *Chronic.*—Commence by applying four or six leeches every third day, for three or four times, and follow this up by counter-irritation. Diet must be mild and farinaceous. Regulate the bowels by enemata, and keep up the function of the liver by mild mercurials. To allay the morbid sensibility, you may give extract of hyoscyamus, or of lactucarium, every night, if there be much pain ; hydrocyanic acid, with bicarbonate of soda, or small doses of morphia. The nitrate of silver appears to be peculiarly advantageous in those cases, in which the tongue is shining and smooth. When the inflammatory symptoms are subdued, you must give nutritious food, mild stimulants, and vegetable tonics ; if these agree, then bismuth, iron, quinine, &c. (Dr. Lees, p. 137.)

Dr. Osborne says that the symptoms of diseases of the gastric glands are sour eructations and vomitings, with a sense of distension after eating. For these symptoms he advises six or eight drops of the tincture of opium to be taken half an hour before meals. These glands are subject to ulceration, and is common in the intemperate. The treatment should be by leeches, counter-irritation, strict regulation of food, and the exhibition of nitrate of silver in quarter or half-grain doses, with opium. The bowels must be moved by enemata, or the compound colocynth pill. (Dr. Lees, p. 139.)

Gastric Ulcer.—There are many who cannot dissever in their minds the idea of inflammation from that of ulceration, but we believe that the perforating gastric ulcer is essentially the result of a local failure of nutrition, and not in any degree *necessarily* connected with inflammation. Our chief object in treatment must be to im-

prove the general condition of the system, by good nutritious diet, allowing five or six hours rest between meals; we must attend to the general mucous surface, and invigorate the organ as much as possible. For this purpose, counter-irritation, with sedatives and astringents, may be necessary at first; and, as soon as they can be borne, tonics, as acids, bitters, quinine, iron, and cod-liver oil. If there be much vomiting and pain, which the ordinary remedies fail to relieve, order strychnine, one-sixteenth of a grain; muriatic acid, one minim; water, one ounce; three times a-day. (Dr. C. H. Jones, p. 143.)

Habitual Constipation.—When from muscular atony of the intestinal tube, nux vomica in half-grain doses, combined with the compound rhubarb pill, possesses decided efficacy, by supplying tone to the weakened muscular coat, which enables it to respond to other irritants. (Dr. Peacock, Dr. A. Clark, p. 158.)

Hare-Lip.—The safest period for operation is from the termination of the first week to the end of the third month. The scissors are generally to be preferred for making the incisions, the division will heal equally well by the first intention as if made with the bistoury; the cut is much neater and uniform, and more easily managed. The form of needle used is important; coarse silver pins and hare-lip needles, with removable points, have often defeated the objects of the surgeon; the common darning needle is undoubtedly the best, when the silk is applied the ends of it should be clipped off. The needle must be introduced at a considerable distance from the edge of the lip, and not in accordance with the rule, "that the point of entrance must be at a distance from the edge equal to the thickness of the lip." In addition to the twisted sutures a fine interrupted suture will be required on the inside of the red border of the lip, to prevent the child's tongue separating the edges. The pins must be removed on the first appearance of ulceration. It will be unnecessary to use any bandage, and in the application of plasters great care must be taken that they do not press upon or interfere with the needles. In difficult cases, Mr. Hainsby's contrivance to press by a spring and pad upon the cheeks, to keep them forward, will be valuable. (Mr. R. G. H. Butcher, p. 233.)

Hernia, *Radical Cure of*.—For a description of this operation see page 249. The advantages claimed for it are, that there is no danger of peritonitis, the spermatic cord and femoral vessels are not injured; the hernial orifice is narrowed and partly obliterated, and in front is placed a powerful obstacle which fortifies it. (M. De Roubaix.)

Strangulated.—From the notes of 100 cases we find that operation without opening the sac is much more common in femoral than in inguinal hernia. The neck of an inguinal hernia offers greater resistance to the reduction of a strangulated bowel than the neck of a

femoral, of course excluding quite recent, and large irreducible inguinal hernia. The risk of leaving the bowels unrelieved for thirty hours and then operating without opening the sac, would be greater than relieving the bowels ten hours earlier and opening the sac. We owe most of our success, in all cases, to the early period of operation. (Mr. N. Ward, p. 250.)

When operating in these cases, let it be your rule to endeavour to relieve the stricture without opening the sac; you gain nothing by opening it, but you may lose a great deal by doing so without necessity for it; in some cases, however, there may be reasons to deviate from it, as when the stricture is internal to the sac, &c. (Mr. E. Cock, p. 245.)

Nip up a fold of skin over the neck of the sac, then run a sharp-pointed bistoury through it, so as to make an incision about one and a half inches long. This is a much safer plan than cutting down upon the hernia; next nip up the tissues beneath with the forceps and divide them, using the knife horizontally, you will thus expose the peritoneum, but do not open it if you can avoid it; divide the stricture external to sac with the probe-pointed knife, using your finger as the director; having divided the stricture, press the sac so as to empty it of its contents, it will then readily be reduced. You may be obliged to open the sac, in some cases, when the stricture is internal to it, or when you have reason to believe the intestine gangrenous. (Mr. S. Solly, p. 247.)

Palate, *Deficiency of.*—In operating upon the hard palate, knives of a peculiar construction will be required, bent at various angles for different parts of the mouth. When the soft parts have been carefully detached from the bone, the edges should never be brought together by sutures, unless they fall and meet together without traction or pressure. When the curtains or flaps do not meet of their own weight in the mesial line, lateral incisions may be required. You must not attempt too much at once, because the separation of a large surface greatly interferes with its nutrition, for both the anterior and posterior palatine arteries would be divided at the same time, and sloughing thereby rendered probable. Operate upon the hard palate first, and thus, although the anterior palatine artery be divided, the flap will obtain ample nourishment from the posterior vessels. In operating on the soft palate, divide the levator palati. To do this, you must keep the flap on the stretch, by means of a suture passed through it; then run a sharp-pointed double-edged knife through the side of the palate inwards and upwards, on the inner side of the hamilar process, which can be readily felt through the soft parts; the handle is next raised, and a sweeping cut made along the posterior part of the soft palate, the levator will thus be freely divided. (Mr. G. Pollock, p. 241.)

Peritonitis *from Perforation.*—Our objects of treatment must be, *first:* To arrest the peristaltic motion of the bowels, with a view of preventing fæcal effusion and favouring adhesions; for this purpose you must give opium in full and repeated doses, say one grain every hour. Should there be incessant vomiting, it must be given by the rectum, and the system kept fully under its influence. *Second*, to subdue the inflammation by the full but judicious administration of mercury and extensive counter-irritation. (Dr. J. S. Hughes, p. 146.)

Acute Peritonitis from Rupture.—The system must be kept fully under the influence of opium for a week or longer, until the acute symptoms abate. Mercury may be best introduced by inunction to the thighs or axillæ, or calomel may be given with the opium if the stomach will bear it. It must be continued until salivation is established. Thirst may be relieved by ice. (Dr. J. S. Hughes, p. 149.)

Piles.—When you have piles associated with protrusion of the rectum, the application of nitric acid is much safer, and quite as effectual a remedy as the ligature and the knife, and there will not be the danger from phlebitis which sometimes follows these operations. (Mr. H. Smith, p. 159.)

Sea Sickness.—We may often succeed in preventing an attack of this by creasote, and the best and most convenient form is to have it made up in lozenges, about one drop in each, one or two of which can be taken when necessary. (Med. Times and Gazette, Oct. 13, 1855, p. 369.)

Tænia.—Give one and a half or two drachms of the ethereal tincture of the rhizome of the male fern in a mucilaginous draught, and follow this by a saline laxative. The worm will be expelled in about five hours. (Dr. W. W. Gull, p. 160.)

Tongue, *Deep Fissures of.*—Apply locally the nitrate of copper to the ulcerated surfaces, and give chlorate of potash in from five to fifteen grain doses, with bark and sarsaparilla. The nitrate of copper is almost invaluable in this class of ulcers, and it will be found equally valuable in small excavated semi-phagedenic ulcers which occur on the genitals. It is a very deliquescent salt, and can only be applied in the liquid state, by means of a small piece of cedar. (Dr. C. Fleming, p. 244.)

AFFECTIONS OF THE URINARY ORGANS.

Bright's Disease.—Liquor ammoniæ acetatis, by acting on the skin and relieving the congested condition of the kidneys, is the best of all remedies for this disease; diuretics at the same time being strictly avoided, but not mercurials. (Dr. Addison, p. 333.)

Diabetes.—This disease is more under the control of regimen than medicine. Milk is very proper in these cases, as diabetic sugar is never generated from milk sugar. Gluten bread has recently been much recommended, but fine bran bread is preferable. Maccaroni is also highly praised. Among medicines, citrate of ammonia and opiates are, perhaps, the best. Some recent researches would point to diabetes as a peculiar form of nervous disease, rather than a renal or hepatic affection. (p. 333.)

Tests for Sugar.—Kletzinsky's fluid, composed of potash, glycerine, and saturated solution of sulphate of copper, when added to diabetic urine and boiled, turns it of an opaque amber colour; with non-saccharine urine, there is a white flocculent deposit. *Maumene's Test* is made by soaking white merino or any woollen fabric in a solution of bichloride of tin, and drying in a water bath: when dipped in suspected urine and carefully dried, the cloth becomes of a darkish brown or almost black colour. (Mr. B. W. Richardson, p. 168.)

Liebig's Method for the Rapid Detection of Sugar.—Dissolve a small quantity of ox-gall in the suspected fluid in a test tube; then add rapidly an equal quantity of strong sulphuric acid. If sugar is present, a beautiful purpurine is immediately produced. (M. Botte, p. 169.)

Hydrocele, *Radical Cure of.*—After the withdrawal of the fluid, introduce a few grains of red precipitate into the sac through the canula, by means of a director. This is quite safe, is uniformly successful, and will answer when iodine injection fails. (Mr. Lloyd, p. 297.)

Irritable Bladder.—Where there are all the worst symptoms of stone, without any appreciable cause, if the usual remedies fail, you may perform cystotomy, by making an incision in the mesian line of the perinæum, in the manner of Allarton's operation for stone, the object being to cut across the nervous plexuses and irritable parts at the neck of the bladder. (Prof. Fergusson, p. 291.)

Oxalate of Lime Deposit.—When examining urine, microscopically, which contains oxalate of lime, it is possible that the crystals may be obscured by opaque urates. When such is the case, they must first be dissolved out by liquor potassæ, or they may very much deceive you, by leading you to suppose that there is very little oxalate of lime, when it is present in great abundance. (p. 167.)

Paracentesis Scroti.—In the advanced stage of ascites, the continued pressure of the water sometimes breaks down or elongates the fibrous and cellular tissues, about the cord, so as to open a communication between the abdomen and the tunica vaginalis, and enor-

mously distend the scrotum. In such cases, where paracentesis is required, although tapping the abdomen is not dangerous, yet tapping the scrotum is much more simple and effectual. (Mr. F. C. Skey, p. 297.)

Perinæal Fistula.—These are sometimes very troublesome to heal. If the actual cautery fail, the injection of acetum-lyttæ twice a week will often procure perfect closure. (Mr. Lloyd, p. 291.)

Phymosis.—*Temporary Contraction* usually depends upon the swelling connected with inflammation, the irritation of gonorrheal discharge, sores, or warty excrescences. Now, instead of slitting up the prepuce as used to be the fashion, you should make the patient inject some black wash, three or four times a day, and live quietly. Under this treatment the contraction, if temporary, will soon disappear. The only case of this kind requiring operation (and it is very rare), is where the warty excrescences within the prepuce are so large and numerous, as to resist other remedial agents.

Permanent Phymosis depends upon contraction of the internal lining membrane, generally from the cicatrization of sores, or it may be from a gradual thickening of the mucous membrane. The simplest method of treating these cases is, undoubtedly, by slitting up the prepuce, but this is a very clumsy, unsightly operation: instead of depriving the glans of its proper covering, it is better to remove no more than a ring at the orifice by a pair of scissors; then draw back the outer skin so as to expose the inner membrane. This must be divided on each side, the flaps turned backwards, and stitched to the cut edge of the skin. This is sometimes necessary in very old people, and although it may appear rather a formidable operation at such a time of life, you must recollect, that you may take liberties with the trunk of the body in old age, which would not be warrantable on the extremities. In the lower limbs, especially of old people, you should as far as possible avoid even the slightest incision, while operations of considerable importance may be performed, if on the trunk, with a favourable prognosis. (Prof. Syme, p. 262.)

In *congenital phymosis*, the skin is more, and the mucous membrane is less, involved than is generally supposed, and the contracted portion is confined to the margin of the preputial orifice,—the mucous membrane is undoubtedly more implicated than the skin, and therefore requires further division. For this purpose, with a pair of blunt scissors, divide the prepuce to the distance of a quarter of an inch on each side of the penis; the prepuce must then be retracted to the extent allowed by the incision, which will by this be brought quite external, enclosing between their lips an uncut layer of mucous membrane. This must be divided on each side in a similar

manner, and the prepuce then entirely retracted. Instead of two incisions, three may sometimes be preferable, and they should then be made equidistant from each other. (Mr. F. Jordan, p. 261.)

Stricture of the Urethra.—In the treatment of complicated cases by dilatation, you must use wax and flexible bougies until you can pass a No. 5 or 6; you may then carry on the treatment with metallic sounds, but if used at an earlier period, you may produce much mischief with them. If it becomes evident that dilatation alone will not succeed, then you must have recourse to potassa fusa, but only as an adjunct to dilatation. (Mr. H. Smith, p. 273.)

In the employment of dilatation, the golden rule which must guide us, both in regard to the extent it may be carried at the time, and the length of interval which is to elapse between each repetition of it, is to exercise just so much pressure and dilating power as can be exerted without producing pain or uneasiness, or more than slight irritation, and not to repeat the process until any excitement produced by the previous catheterism has completely subsided. The fulfilment of these indications will conduce in the long run the most quickly and safely to a successful result. (Mr. H. Thompson, p. 268.)

The method which M. Maisonneuve adopts for their radical and instantaneous cure is that by internal division. When very contracted, he commences by passing a very fine thread-like bougie into the bladder,—this will require great tact and perseverance: another larger bougie is then articulated to the end of this, and pushed forwards, so that the first bougie becomes coiled up in the bladder; when this is thoroughly in the stricture it must be withdrawn, and another filiform bougie passed, to which is attached the cutting instrument of Frère Come. When this is fairly in the stricture, you must unsheath the bistoury and withdraw the instrument, cutting through all resistance. The patient generally gets well in fourteen days. As to the possibility of relapses, nothing at present can be affirmed,—it is a question to be judged of hereafter. This method of treatment has been the subject of much discussion before the Surgical Society of Paris; the result of this shows that dilatation is still the best and safest plan, and that the cases are very few requiring incision. If a patient can bear with tolerable ease a moderate stricture, he had better do so than be operated on, for experience shows it is not free from danger, however practised. (Mr. W. Acton, p. 286.)

Cauterization of.—First coat the end of a cat-gut bougie with nitrate of silver, or you may coat it with potassa fusa if you grease the end of the bougie slightly before dipping it into the fused potash; then pass a full-sized straight catheter, with the end open, down to the

stricture,—introduce the armed bougie through this, and pass it into the stricture by gently rotating it, until it has passed to the extent desired. (Mr. J. Z. Laurence, p. 285.)

Supra Renal Capsules, *Disease of*.—We can never give any other than an unfavourable prognosis,—no recovery from true bronzing of the skin has ever been recorded; but as we believe, that the changes which the supra renal bodies undergo, are allied to inflammation, we should expect the most benefit from mercury, in very small doses, or the use of iodide of potassium,—the patient's strength being meanwhile supported by a nutritious, but non-stimulating diet. (Mr. J. Hutchinson, p. 170.)

Urinary Fistula.—In a great number of cases, nothing else is required than to dilate fully the urethra, and the fistulæ will heal of themselves; there need be no meddling with them, the less they are touched the better. But in weak constitutions, or when the fistula passes through much indurated tissue, we must improve the general health by good diet, tonics, and cod-liver oil; and, locally, we must stimulate the walls of the fistula, so as to bring about adhesion of opposing surfaces, by applying a strong tincture of cantharides, by means of a camel-hair pencil, or by touching with a probe coated with nitrate of silver. If these fail, lay them open, so that they may heal up soundly from the bottom. (Dr. Henry Thompson, p. 271.)

AFFECTIONS OF THE SKIN, &c.

Cutaneous Affections.—When associated with the cancerous diathesis, are best treated by creasote made into pills with liquorice powder. (p. 332.)

Eczema.—The value of cod-liver oil in this obstinate disease is now almost universally conceded; it should be used in conjunction with other remedies. (p. 331.)

Erysipelas.—Apply a solution of gutta percha in naphtha, and over this place thin gutta percha tissue; it acts by exclusion of air. This holds firmly for from three to five days, and may then be readily taken off if wished as a simple plaster. You may keep it in a small tin pot, having a lid which screws on to prevent evaporation, and when wished to be used it may be warmed and applied with the finger. (Dr. G. Hamilton, p. 316.)

Itch, *Rapid Treatment of*.—Dissolve 12 grammes of the chloride of sulphur in 100 grammes of the sulphuret of carbon, and apply this rapidly by means of a large brush to the whole surface. The patient must be quite naked in a well ventilated room, and means taken to prevent the fumes being inhaled. A bath on alternate days will complete the treatment. (M.M. Dusard and Pillon, p. 327.)

PHAGEDENIC ULCERATION.—When situated upon an extremity, and the sore can be well exposed, try constant irrigation. You must have a reservoir above the bed filled with lukewarm water, to which a little chloride of lime or soda has been added as a preventative of smell. Then by means of an elastic tube a stream must be kept continually flowing over the sore. By this means all particles of discharge, &c., are washed away as soon as formed, and a speedy arrest of morbid action is secured; of course this is based on the supposition that phagedenic action is a process of local contagion, the *materies morbi* by which the ulcer spreads being its own pus. (Mr. Cock, p. 327.)

PORRIGO.—The treatment now in vogue for this affection is the iodide of lead ointment and alkaline lotions, with the internal use of the iodide of arsenic. (p. 331.)

Porrigo Decalvans.—Shave the head every four days, wash night and morning with soft soap and water, and then rub in this ointment:—℞. Axungiæ recent. ℥j.; creosot. ♏x.; ol. limonis q. s. M. The following mixture must be given at the same time and persevered in until the case is complete:—℞. Potassii iodid. gr. v.; liq. potassæ ʒiss.; tinct. card. co. ℥i.; aquæ ℥vijss. M. Coch. mag. ter quotidie sumend. (Mr. J. Burton, p. 319.)

SCALP, *Wounds of.*—In spite of any treatment, erysipelas too commonly comes on about the third or fourth day; whenever such does happen, the tonic treatment by quinine, steel, and wine is the best. (Mr. F. C. Skey, p. 331.)

SINUSES.—When chronic and not inflammatory, you may often cure very troublesome cases by the application of strong nitric acid along the entire length of the sinus. This may be done by charging a fine glass tube with the acid and carrying it to the bottom of the sinus, then discharging it along the whole track as the tube is withdrawn. If there be any redness or inflammation present, the application will generally fail. (Mr. F. C. Skey, p. 336.)

SMALL POX.—In confluent variola, as soon as the eruption is complete, the greatest benefit may be derived from a few grains of Dover's powder, given every night. (Dr. Cookworthy, p. 439.)

Prevention of Pitting in.—Dr. Stokes, and Dr. Graves of Dublin have recommended painting the face with a solution of gutta percha in chloroform. It should be applied immediately before complete maturation. The increase of swelling after this time is moderate, and not such as to give rise to much pain, tension, or inconvenience. (Dr. J. Wallace, p. 320.)

SYCOSIS.—If a regular course of arsenic fails to cure, the greatest advantage may sometimes be derived from cod-liver oil, if persevered with for a sufficient length of time. (Mr. T. Hunt, p. 317.)

Never shave, the beard ought to be cut with scissors. Locally apply emollient fomentations, cataplasms of the fecule of potato. When the inflammatory stage has passed, we may employ an ointment of the iodide of sulphur, ℥ss. to ℥i. of lard, every night, and an alkaline solution every morning. (M. Chausit, p. 318.)

By painting daily with tinct. iodin. co., the most obstinate and chronic cases may be got rid of. (p. 320.)

Ulcers, *Cancerous.*—From a trial of a great variety of applications, the following lotion seems to answer perhaps the best:—℞. Plumbi acet. ℈ij. ad ℥j.; creosoti ♏xl. ad ℥j.; aq. fluvial. ℥xij. M. Ft. lot. (Mr. J. Valentine, p. 336.)

Indolent Ulcers.—Opium in one grain doses has lost none of its *prestige* in these cases, especially when situated on the lower extremities. (Mr. F. C. Skey, p. 332.)

Apply a lotion, consisting of half a drachm of the tincture of catechu to a pint of the decoction of oak bark. (Mr. Savory, p. 334.)

Of the Leg, Chronic.—There is no treatment comparable to the internal exhibition of 5 grains of the pil. saponis co., night and morning. Opium is the best regenerator of the defective structure, in a few days a large callous ash-coloured ulcer of years' standing, will put on a fine healthy granulating appearance, not owing to the sedative effect of the opium, but its regenerating power. (Mr. F. C. Skey, p. 331.)

Wounds.—Glycerine is a capital application to wounds of almost any description, and especially if sloughy. It is very clean, soft, and comfortable to the patient, and it promotes cicatrization. The manner of applying it is by simply dipping a piece of lint into it, and placing it over the whole of the wound. (M. Demarquay, p. 334.)

AFFECTIONS OF THE BONES AND JOINTS.

Carpal Bones, *Excision of.*—In cases of partial disease of the wrist-joint, in place of amputation of the forearm, excision of the diseased bones is sometimes preferable, as by this means the disease is equally removed, and a very useful hand preserved. It should be conjoined with the use of cod-liver oil and tonics, &c., especially in strumous cases. (Mr. Cock, p. 194.)

Cartilage, *Ulceration of.*—This disease is hardly ever met with in the ball and socket joints, it is nearly entirely confined to the hinge-joints. The symptoms are deep-seated pain, generally increased during the night, uneasy sensations in the next joint, or even the whole limb, more or less swelling of a firm unyielding kind confined to the seat of the articulation. These symptoms may continue for weeks or months, and terminate either in recovery with more or less

stiffness of the joint, or in suppuration with caries. The treatment has generally been by leeches, fomentations, blisters, caustic, issues, but all these will often fail. The only remedy which may be depended upon with perfect confidence, is the actual cautery, which may be drawn crossways over the joint. The result is often surprising and satisfactory. (Prof. Syme, p. 425.)

Contractions of the Knee.—When from nervous irritation, as a symptom of general hysteria, there will be no evidence of disease within the joint; in these cases put the patient under the influence of chloroform, and the limb will almost of its own accord fall into the straight position, in which it must be retained by means of a long splint. When depending on spasmodic contraction of the hamstrings from irritation of the nerves at some distance, as by the pressure of fæces, &c., give powerful cathartics to clear out the bowels. When from subacute inflammation within the joint, it will generally yield without the necessity of extending force, by the application of leeches, blisters, and other remedies to reduce the inflammatory action, as small doses of mercury and morphia, &c. When from consolidation of the ligamentous structures in and around the joint, you will generally succeed by gradual and forcible extension. Never mind the snaps and cracks which may be heard; there is no fear, if you only take care that there is no inflammatory action going on in the joint at the time. (Mr. J. Erichsen, pp. 182 and 216.)

Fractures of the Leg.—When simple and transverse without displacement, whether one or both bones are broken, encircle the limb with a simple pillow made of soft flock, and bind it to the leg with straps of broad tape or pieces of roller; this will form a soft uniform wall around the limb, which will be superior to any number of splints. (Mr. F. C. Skey, p. 196.)

Housemaid's Knee.—There is no form which this disease assumes that is not amenable to treatment, by means of a single thread of silk passed through its centre. Sooner or later (from two to ten or fifteen days), suppuration in the cyst will follow, and the case assumes the form and character of an ordinary abscess, which the lancet will effectually relieve. (Mr. F. C. Skey, p. 197.)

Knee-Joint, *Diseases of*.—In obstinate cases, which defy the usual forms of treatment, local depletion by means of leeches or cupping, is injurious. You will find the most benefit from the inunction of mercurial ointment, with one-third its quantity of fluid extract of opium, followed by perfect rest in the recumbent position, and the firm application of a flannel roller. (Mr. F. C. Skey, p. 181.)

During the acute inflammatory stage, keep up counter irritation by a *repetition* of caustic issues made with potassa fusa; this method is preferable to keeping an issue open by peas, as there is greater advantage to be gained by the primary burning than the

subsequent suppuration. If the joint be obliterated, and the disease entirely subdued, you may straighten the limb by forcibly breaking through the anchylosing bands; this may be accompanied by a loud crack, but there is no danger, they generally do very well. (Mr. S. Solly, p. 192.)

Excision of.—The following two suggestions may be worthy the attention of practical surgeons in the management of these cases. The first is the *division of the hamstring tendons*, so as to prevent the displacement of the bones, which is so troublesome in the after treatment. The second is the *making of an opening into the popliteal space* for the direct escape of pus, to prevent it bagging and burrowing. (Mr. J. Hutchinson, p. 194.)

To Mr. Hutchinson's suggestions as regards the operation, we may add another, viz., that the limb be put up in one of Ester's swinging fracture apparatus, having an opening at the posterior part through which pus may escape, and the wound be dressed without disturbing the limb. (Dr. O. Vitalis, p. 439.)

Necrosis.—Whenever tendons pass over newly developing bone, it is of the greatest importance that union should be averted between them, by commencing passive motion as soon as it may safely be done. (Mr. S. Solly, Lancet, Jan. 5, 1856, p. 6.)

Painful Stumps.—From considerable experience we know that painful stumps are much more common after flap amputations than circular amputations; in the latter the nerves are cut off short and buried in the stump, while, in long flaps, the nerves are cut obliquely, and are more likely to be pressed upon. When very troublesome you must dissect out the bulbous extremity. (Mr. E. Stanley, p. 197.)

Paralytic Deformities.—In the treatment of these cases you must remove existing deformity by tenotomy and mechanical appliances, and subsequently compensate for the paralysis by mechanical support. When the muscles of the leg are paralysed, those about the hip joint are not involved, and may be made available in the effort of progression by properly adapting mechanical supports to the thigh, and rendering the knee-joint immovable when in the erect position. (Mr. W. Adams, p. 204.)

Shoulder Joint, *Disease of.*—In a case which required excision of the head of the humerus, Mr. Syme enlarged an opening existing on the inner side of the shoulder; he then, by means of a probe-pointed bistoury, guided on his finger, detached the connections of the spinati muscles, and pushing the arm upwards, protruded the head of the bone, which was then removed. We may remark that ball and socket joints are most liable to chronic inflammation, suppuration, and caries; while the hinge-joints are more subject to ulceration of the cartilages, and gelatinous degeneration of the

synovial membranes. But the shoulder joint is apt to suffer from disease entirely peculiar to itself; one is, removal of the osseous substance by absorption, so that a cavity is left in place of the round extremity, from inflammation affecting the head of the humerus, independently of the scapula. Again, excessive action of the biceps will produce an injurious effect upon its osseous attachments, leading to exfoliation of the coracoid process, and disease of the humerus, along which the long head of the muscle passes. (Prof. Syme, p. 178.)

Talipes Equinus.—Mechanical extension should be commenced on the third day after the division of the tendon; the foot must be bandaged and placed in a Scarpa's shoe, or that modified by Mr. Adams; the rate of extension in a healthy infant should be such as to obtain the full length required in a fortnight, if practicable; in adults and paralytic limbs it will require a longer time. Our object must be rather to regulate the length of new tendon than to elongate or stretch the new material: care must be taken to carry the foot beyond the right angle with the leg, according to age and comparison with the healthy foot. During the latter period of treatment, passive exercise must be employed to prevent stiffness of the joint. When much resistance has to be overcome, most good is done by constant and regular, rather than intermitting mechanical extension. In ordinary cases, flexion and extension may be used for a quarter of an hour or more each day. (Mr. W. Adams, p. 213.)

Tenotomy.—To perform this operation cleanly and readily, you must use a knife with a cutting edge considerably longer than the breadth of the tendon. You must place the patient on the stomach, and let an assistant put the tendon on the stretch, by endeavouring to flex the foot, then introduce the tenotomy knife with its flat surface parallel with the tendon and close to its edge, but rather towards the posterior surface, pass it obliquely downwards, keeping the point close to the tendon, and then by depressing the handle you carry it beneath the tendon; this done, turn the cutting edge towards the tendon and divide it transversely; the division is indicated by a sudden audible snap and the yielding of the joint. In infants direct pressure of a sharp knife is often sufficient; but in adults a little cutting manipulation is required. On withdrawing the knife apply instantly a compress of lint plaster and bandage. Some surgeons recommend the tendo Achillis to be divided by passing the knife flatwise posteriorly between the tendon and the skin, and then cutting from behind forwards; but the other method described is perhaps, the better. (Mr. W. Adams, p. 210.)

Tendons, *Reunion of*.—The newly-formed connective tissue, or new tendon, gradually assumes the character of the old tendon, so perfectly that no difference can be perceived; it may be formed to the

extent of two inches, and it is through the agency of this that the required elongation is maintained. (Mr. W. Adams, p. 208.)

VENEREAL AFFECTIONS.

Copaiba, *Substitute for.*—Wood oil or, Gurjun Balsam, has been recently imported in considerable quantities from Burmah, and sold for copaiba. Dr. O'Shaughnessy says that it is nearly equally efficient with copaiba in the treatment of disease. It may be given in doses of from ten to thirty drops. (Mr. D. Handbury, p. 343.)

Gonorrhœa.—M. Ricord employs large doses of cubebs in powder, or copaiba capsules, together with his favourite injection, consisting of 10 grains of the subnitrate of bismuth to 6 ounces of water. In London, the capsules, with lead injections, rarely fail to cure when given after the inflammatory stage has passed. If the disease should continue in a subacute form, examine the urine, it will most likely contain mucus, and if it do, there will be some irritation of the bladder or prostate: you must then lay aside both the capsules and the injection for a time, and give the extract of the spruce fir as follows:—℞. Ext. abietis nigr. inspiss. ʒij.; magnes. carb. q. s. M. ft. pil. xxx.; cap. i. vel ij., bis vel ter in die. If you find it necessery to give opium by the rectum, it will be most convenient in the form of a suppository, and this will be far better to introduce if made of the butter of the cacao-nut, than if made of Spanish soap. ℞. Pulv. opii gr. i.; buty. cacaonis, gr. x. M. Ft. supposit.; hac nocte utend. (Mr. W. Acton, p. 341.)

Psoriasis, *Syphilitic.*—Iodide of potassium and sarsaparilla wil generally cure the disease for a time; but as a matter of certainty and safety, 5 grains of Plummer's pill should be given night and morning, though not necessarily to touch the mouth. (Mr. E. Stanley, p. 332.)

Ptyalism.—When very severe, give 15 grains of chlorate of potash thrice daily, in an ounce of water. (Mr. Hutchinson, p. 341.)

Syphilis.—We believe that there are a plurality of poisons in this disease depending upon the constitution of the person affected, and not on the source of the infection. For the treatment of venereal sores, mercury in ninety-nine cases out of one hundred is unnecessary. We may say that there are three different kinds of venereal sores: first, the common venereal sore, where mercury is quite inadmissible; second, the phagedenic sore, where mercury is positively injurious; third, the true syphilitic sore, dusky, cartilaginous, indurated, here mercury is useful, and it is the only case in which it is admissible, but it is very rare comparatively. M. Ricord, of Paris, entirely and fully coincides with these views. In the exhibition of mercury, it is a bad plan to push it where it seems to have

little or no effect. It would be much better to intermit its use for a few days, and when resumed, it will be far more likely to produce a beneficial impression. When pushed to salivation, it too often produces a long train of complaints, which last as long as life. (Mr. F. C. Skey, p. 336.)

Ulcers, *Spreading and Sloughing.*—The best of all the usual remedies for such affections is the external application of the "Friar's Balsam," (tinct. benzoin co.) (Mr. Stanley, p. 332.)

AFFECTIONS OF THE EYE AND EAR.

Artificial Membrana Tympani, *New Form of.*—Make a perfect model of the meatus in wood: its end should be flat, and cut obliquely. This, previously oiled, should be dipped six or eight times into a solution of gutta percha in chloroform, until a film of the thickness of oiled silk is formed, which must then be peeled off the model in one unbroken piece, and if properly made it will fit the meatus comfortably, and may be readily removed and replaced when necessary to clean it. It should not be allowed to protrude, but cut so as to lie entirely within the meatus. (Mr. T. Westropp, p. 314.)

Cataract, *Extraction of.*—The short broad knife has the disadvantage of not retaining the aqueous humour so completely and so readily as a long narrow blade, which travels along with great ease without the force and difficulty sometimes experienced in cutting with the short-bladed knife. (Mr. G. Critchett, p. 305.)

Collyrium *of Chloride of Zinc*, one grain to the ounce is very valuable in thickened or vascular conjunctiva, which may be considered to be a sort of "gleet of the eye." (Mr. G. Critchett, p. 314.)

Extirpation of the Eye.—Divide the conjunctiva as close as possible round the margin of the cornea, then cut through the external rectus muscle close to the sclerotic, then the superior and inferior recti, and the obliqui; then draw the globe forwards and divide the optic nerve, turn the globe out of the orbit, and complete the operation by dividing the internal rectus. It is readily done, there is no hemorrhage, no local or constitutional disturbance, and the cure is speedy and complete. It may be performed, 1st, where there is extensive staphyloma of the globe, and in such cases it is a far milder operation than that of opening the globe. 2nd, where a foreign body is suspected within the globe. 3rd, where there is

extensive adhesion between the globe and the lids. 4th, where there is frequently repeated acute inflammation, preventing the use of the other eye. 5th, where there is deep-seated disease of the globe, threatening the loss of the other eye. (Mr. G. Critchett, p. 301.)

Granular Conjunctiva.—We have no hesitation in recommending very strongly, as a local application to the granular surface, the solution of diacetate of lead; it should not contain any carbonate of lead, which is apt to be deposited from it on exposure to the air. It may be applied not oftener than once in two days by means of a camel-hair brush of moderate size. (Dr. R. Hamilton and Mr. B. Bell, p. 299.)

Iodine Adhesive Paint.—℞. Spt. vini rect. ʒij.; spt. æther. nit. ʒiv.; mastic, ʒss.; iodinii, ad saturat. This is very useful where iodine is required about the eyes, as it does not run on the skin.—(Moorfields Ophthalmic Hospital, p. 415.)

Ophthalmia.—In strumous ophthalmia quinine is the chief remedy to rely upon; in purulent ophthalmia, the careful use of nitrate of silver; in corneitis, iron is most valuable, and where the sclerotic is involved, cinchona, alkalies, and colchicum. (p. 300.)

MIDWIFERY, AND THE DISEASES OF WOMEN.

Abortion.—When nervous excitement prevails, with intermitting uterine pain, a full opiate is of great service. Dr. Fleetwood Churchill has given the cannabis Indica with good effect. As astringents, the acetate of lead or gallic acid with opium are the best. The patient must be kept cool, and in the horizontal position, for standing greatly adds to the probabilities of abortion. Keep the bowels open with conf. senna, or potass. bitart.; castor oil irritates the uterus and ought not to be given. When abortion has threatened at a catamenial period, great care ought to be taken as the next monthly period comes round, to avoid every cause of irritation, and keep perfectly quiet.

In severe cases, where all the more powerful astringents have been tried in vain, the vagina must be plugged firmly with lint or sponge; if this do not arrest the hemorrhage, the membrane should be ruptured to excite expulsive action of the uterus. If the bag of the early ovum can be felt with the finger in the cervix uteri, it can generally be separated by careful manipulation. Dr. Simpson

recommends the introduction of a sponge pessary, to dilate the os and cervix, but if you do use the sponge, you must not allow it to remain long enough to become fœtid. Galvanism has been suggested by Dr. Robert Barnes. A drastic cathartic will often complete the expulsion of an ovum in a very satisfactory manner. (Dr. Tyler Smith, p. 360.)

Amenorrhœa.—Dr. Mikschik says he has derived great advantage from the tincture of iodine, as an emmenagogue, applied daily to the os uteri. (p. 422.)

Encephaloid Cancer of the Breast.—This is the form of malignant disease which is the most certain to return after removal; yet, notwithstanding this, it is often our duty to operate even in the later stages of the disease, not with the hope of saving life, but of prolonging life, by removing a bleeding, ulcerating, sloughing, loathsome mass, which makes life wretched. If you see the disease sufficiently early, before the neighbouring glands are implicated, you are bound to operate in all cases; lose no time, remove enough, and especially the skin, for this is the structure which is generally first attacked. When the disease returns, you must make the lower incision the first: take great care that you dissect the pectoral muscle cleanly,—and in some cases it will be necessary to remove a portion of it also. While you ought almost invariably to operate in this kind of cancer, there are other kinds where you ought not to operate, and these are cases of scirrhous, stony cancer, which have advanced slowly and silently for years, without much annoyance on the part of the patient, until the glands in the axilla are implicated, and the disease is firmly attached to the pectoral muscle. You will do more harm than good if you interfere in these cases. (Mr. S. Solly, p. 46.)

Labour, *Induction of.*—The uterine douche possesses many advantages over ergot—1st. In will excite contractions; 2nd. It does not endanger either the mother or the child; 3rd. Its action can be better regulated according to the effect required;—and 4th. It may be employed at the commencement of labour, and in all degrees of dilatation of the neck. (Dr. Bourgeois, p. 371.)

Menorrhagia.—When unconnected with organic disease, it may be readily checked by infusion of digitalis. If there be organic disease, it will control the discharge, but its effects will not be permanent (Mr. W. H. Dickenson, p. 376.)

Molar Pregnancy.—If the life of the mother should be threatened, the ovum should be detached by the catheter or the uterine sound without hesitation. Ergot of rye must also be given to excite con-

tractions, but in ordinary cases, as in simple abortions, we must wait until the ovum can be reached with the finger before we attempt to remove it. In hydatid degeneration, the treatment may be more positive—give ergot, and if the os uteri be dilatable, introduce the hand to detach and remove the hydatid mass. (Dr. Tyler Smith, p. 382.)

Nausea and Vomiting of Pregnancy.—You must first try to get the secretions into a healthy state. One of the most serviceable remedies in these cases is the infusion of calumba with soda and hydrocyanic acid, or you may give this in an effervescing form with citric acid,—in some patients opium answers better, and perhaps the solution of the bimeconate of morphia is the best form in which an opiate can be given. Salicine, in doses of three to five grains, three times a day, is a valuable medicine. Creasote, in one or two drop doses made into pills with bread, is an efficient remedy. Professor Simpson particularly recommends the nitrate of cerium in doses of one to two grains in water, and also the inhalation of the vapour of laudanum. (Dr. Tyler Smith, p. 354.)

Os and Cervix Uteri. *Inflammation of.*—The indications of local treatment are to allay irritation and restore tone; for this purpose where there is much heat, pain, or discharge, the liq. plumbi diacet. in decoct. papaver. forms one of the best injections. It must be retained as long as possible, by making the patient lie upon her back with her heels drawn up to the nates; suppositories of diacetate of lead and extract of conium are also very valuable. With some patients the warm bath is the only thing which gives relief, but the sooner she can gradually come to the use of cold water the better, and especially sea-bathing. (Dr. Rigby, p. 350.)

Ovarian Cysts.—The injection of tincture of iodine after paracentesis has been very encouraging in its results, and is deserving of more general confidence. (Mr. I. B. Brown, 334.)

Paracentesis Abdominis.—Use neither pressure nor bandage, allow as much of the fluid to flow out gradually as the natural elasticity of the cyst or abdominal parietes will expel; when the flow has quite ceased of itself, close up the orifice, keeping the patient recumbent. (Dr. Corrigan, p. 386.)

Pregnancy, *Diagnosis of, from Abdominal Tumours.*—By applying the hand, the tumour at first feels soft and ill-defined, but by pressure it rapidly assumes a tense rounded form, becoming firm and resisting. This may be taken as a trustworthy characteristic of a pregnant uterus, since there is no other tumour which possesses any power of altering its form when irritated by palpation. (Dr. Oldham, p. 383.)

Tartar Emetic, *in Obstetric Practice.*—In the early stages of primiparæ, where the os uteri is hard, undilatable, and fails to yield to time and the ordinary remedies, one grain of tartar emetic with six ounces of soap-water may be given by the rectum, with very beneficial and relaxing effects. It is particularly applicable for the robust and plethoric. (Dr. J. Young, p. 387.)

Turning, *Use of Forceps.*—In all cases where the head is detained after the delivery of the body, the use of the forceps is greatly preferable to pulling by the body or neck of the child. They may be applied easier than in vertex presentation, because you have the head fixed and know its exact position. The extracting force is certainly safer, and the compression of the head may be more effectually accomplished than by the irregular distorted pelvis. (Mr. A. Morton, p. 372.)

MISCELLANEA.

Blister.—A very ready way of raising a blister rapidly in cases of emergency, is by dipping an iron spoon into boiling water, and then applying it to the skin. (Mr. Simon, Lancet, Nov. 17, 1855, p. 460.)

Chloroform, *Formulæ for administering.*—It may be mixed with a little oil of sweet almonds, and rubbed up with gum arabic; or without mixing with oil, it may be added to equal parts of sugar and gum, and rubbed up gradually with water. Again, it may be mixed with yolk of egg and syrup. (M. Dannecy, p. 401.)

Muriate of Ammonia, *Internally.*—It may be given in many chronic inflammatory diseases, as chronic bronchitis, enlargement of the lymphatic glands, chronic skin diseases, and chronic rheumatism. Dr. Watson testifies to its efficacy in certain forms of facial neuralgia, nervous headache, toothache, and sciatica. Its action is sometimes remarkably beneficial, when the secretion from the pulmonary mucous membrane is tough and tenacious, it speedily becomes altered in quality and consistence. In chronic periosteal inflammation, having a syphilitic origin, it seldom fails to give relief. In indolent bubo a strong solution (ʒij. to ℥i.) may be kept constantly applied, and five to ten grains may be given internally three or four times a-day. In neuralgic affections, Dr. Ebden has given from 25 to 30 grains for a dose. (Dr. A. Lindsay, p. 410.)

New Trivalve Speculum.—This instrument will be found to possess many advantages over those in ordinary use. It is constructed on the same plan as M. Ricord's bivalve speculum, but has three divergent blades; it allows of extensive dilating power within the rectum, with as little bulk as possible opposite the grasp of the sphincter; yet there is quite sufficient space to admit the finger, instruments, or the application of nitric acid, &c. (Mr. S. A. Lane, p. 348.)

Phosphate of Lime.—This substance may be rendered much more soluble, and therefore useful, by uniting it with carbonate of lime in the following proportions: phosphate of lime 4 grammes, carbonate of lime 8 grammes; sugar of milk 12 grammes. (M. Kuchenmeister, p. 403.)

Poisoning.—The plan of the Dublin College requiring druggists to keep all dangerous preparations in square or angular bottles, and the others in round bottles, would prevent many accidental mistakes. (p. 440.)

By Aconite.—This has not unfrequently been mistaken and eaten for horse-radish; it may be known by the acid taste of the aconite parings, and the pinkish colour which they assume when exposed to the air. Cases of poisoning may be known by the symptoms, which are very characteristic, and by the extremely poisonous effects of the matters from the stomach on small animals. The best treatment is the free exhibition of animal charcoal mixed with water, followed by a zinc emetic, and then by brandy and ammonia. (Dr. F. Headland, p. 440.)

Strychnine, *Method of Detecting in the Human Body after Death.*—Mr. Rodgers, Lecturer on Chemistry at the St. George's School of Medicine, has published in '*The Times*' the following process, which has enabled him and Mr. Girdwood "to detect that fearful poison in the blood, liver, tissues, and contents of stomachs of animals poisoned by doses such as those Dr. Taylor administered in the experiments on which he founded his theory promulgated at the late trial, and which has also enabled us to separate the strychnine from the tissues and organs of a dog after the body had been interred twelve months."—"The tissues of the body are rubbed with distilled water in a mortar to a pulp, and then digested, after the addition of a little hydrochloric acid, in an evaporating basin; then strained, and evaporated to dryness over a water bath; digest the residue in spirit filter, and again evaporate to dryness; treat with distilled water, acidulated with a few drops of hydrochloric acid, and filter; add excess of ammonia, and agitate in a tube with

chloroform; the strychnine in an impure condition is entirely separated with the chloroform. This chloroform solution is to be carefully separated by a pipette, and poured into a small dish, and evaporated to dryness; the residue is moistened with concentrated sulphuric acid, and heated over a water bath for half an hour; water is then added, and excess of ammonia—again agitated with chloroform, and the strychnine will be again separated by the chloroform, now in a state of sufficient purity for testing, which can be done by evaporating a few drops on a piece of white porcelain, adding a drop of strong sulphuric acid, a minute crystal of bichromate of potash being added in the usual way; or the elegant mode proposed by Dr. Letheby can be adopted." (Mr. J. E. D. Rodgers, and G. P. Girdwood, "*Times*," June 13, 1856.)

Naphthalidam, an organic base derived from napthalin, will produce an exactly similar purple colour when brought into contact with a mixture of bichromate of potash and oil of vitriol, as strychnia. (Mr. Simpson, p. 441.)

PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

Art. 1.—ON THE PROPHYLACTIC AND CURATIVE TREATMENT OF CONTINUED FEVERS.

By Dr. Robert Hunter Semple, Physician to the Northern Dispensary.

[All know the main features of this strange and mysterious disease, and that it may assume an almost infinite variety of forms; but of the nature of fever, we may at once admit that we know but little: some consider it to be an affection of the nervous system, others of the gastro-intestinal mucous membrane, while others point to a disordered condition of the blood as the real cause. This last is that which is perhaps the most consistent with known facts, though the others are not destitute of plausible arguments in their favour. There is an indisputably close connection existing between the nervous system and the febrile diathesis, but the blood theory of the disease is by no means inconsistent with the facts of nervous disturbance, the innervation must materially suffer when the blood is in a morbid state.]

The opinions of medical men in the present day tend towards the revival of the "humoral pathology;" and, not only does daily experience teach us that the scalpel of the anatomist fails too often to reveal the real essence of disease, but we are, moreover, led to believe that the visible changes in the solid tissues are to be regarded as consequences of a vitiated condition of the vital fluid. The opinion that cancer and tuberculosis are originally blood diseases is fast gaining ground: that cholera, scurvy, purpura, and albuminuria are blood affections can hardly be doubted. In the whole series of inflammatory diseases the blood undergoes an appreciable change in the nature and proportion of its constituents, causing morbid deposits in the various organs; and it is most consistent with experience to attribute the whole series of febrile diseases, including the exanthemata, to peculiar conditions of the constitution of the blood.

This view is by no means to be regarded as wholly hypothetical, and, therefore, of little importance to the practical study of medicine, but is, in fact, pregnant with results of the highest importance in our

treatment of disease; for, if we admit that diseases spring from poisons generated in the blood, or introduced from without, we shall be led to study the mutual relations of the human body to external or internal agencies, with a view to arrest the development of morbific processes in the system, instead of combating them when they have already seized upon some vital organ. How often do we find patients suffering from general *malaise* and evident illness, although no local injury is yet apparent, and no amount of sagacity can foresee the precise point which is about to be attacked. By a firm persuasion of the blood origin of diseases, and by a conscientious adoption of measures in accordance with that view, incalculable benefits will accrue to the profession and to mankind. Legislators and generals will investigate the hidden sources of disease in the surrounding elements, in the food, the clothing, the moral condition, of their people; and, by destroying noxious emanations, by promoting cleanliness and cheerfulness, and by the due regulation of diet, much will be accomplished in promoting the physical and moral welfare of the nations of the earth. I do not advocate any such extravagant doctrine as the possibility of the universal abolition of disease, or of moral evil, from the world; but experience has proved that the sources of disease are more under human control than was formerly imagined, and that the health of the population may be indefinitely promoted by the adoption of sound measures of hygiene. Unfortunately, our professional assistance is often demanded when human skill is of no avail; and the warning voice of disinterested patriotism, on the part of members of our profession, is too often disregarded till remedial measures are too late.

The *treatment* of continued fever is a subject on which a great diversity of opinion still exists, although, perhaps, not so much as in former times; and it is very much to be regretted that all therapeutical means must be considered to be empirical; for, even if we admit, what I believe to be the most probable theory of the proximate cause of continued fever, the poisoning of the blood in this disease, we have yet to discover a method of treatment which shall eliminate the poisonous matter, and restore the patient to health. It does, indeed, seem probable that this elimination takes place; but we cannot assert that any means in our power can infallibly produce this desirable effect. I think it may be stated generally, that continued fevers run a certain course, extending over a certain number of days, although we have not yet been able to determine with accuracy the precise period to which any given fever will extend; neither has it been ascertained whether, by means of treatment, a fever which would run on to six weeks, has been curtailed to the duration of seven or fourteen days, although it is highly probable that such is the case. I must confess that I do not believe in the possibility of *cutting short* a fever by any one remedy, although, as I have just observed, I believe it likely that the duration of fevers may be diminished by the application of combined agencies.

But in order to direct with judgment the employment of remedial measures in fevers, I believe it to be essential to consider their different species.

The division of continued fevers by Cullen will be readily called to mind; the *synocha* or inflammatory fever, the *typhus* or lower fever, and the *synochus* or mixed fever. But this division is obsolete, for the synocha or inflammatory fever seems to have disappeared from among us. The division into *typhus* and *typhoid* is far more in accordance with modern observation, and I may at once express my conviction that this division is founded upon nature, as I have seen many hundred instances of the disease in the London Fever Hospital; and in all these cases the diagnostic marks of the two diseases were very plainly indicated. The scepticism which still prevails in some minds upon this subject is probably due to imperfect observation, or limited experience, or to the fact that in some of the milder cases of fever, the peculiar rash is not developed. In my own experience, although seeing in the course of each year several instances of fever, I was not much struck with the divisions of fever into typhus and typhoid, but when from local circumstances I was thrown in contact with a great number of cases, I was enabled to compare one case with another, and thus to establish in my own mind the accuracy of the diagnosis. It must be recollected, that nature always exhibits connecting links between diseases, as she does between the tribes of animals and plants; and just as it happens that it is difficult to distinguish certain forms of cutaneous affections without an extensive range of subjects for study, so is it also difficult to seize readily the distinguishing marks of *typhus* and *typhoid* fever, without the opportunity of observing a great number of cases, following them through their different phases, and watching their peculiar complications.

While making these general remarks, I am by no means ignorant of the fact that cases have been occasionally adduced in which the marks of typhus and typhoid fever have been described as occurring in the same patient, and I do not affirm that the question is at present finally settled; but if any serious attempt should be made to controvert the existence of the distinctions, it must be made with the same patience and zeal as have been exhibited by Dr. Jenner, and must be made in an equally extensive sphere of observation as that afforded by a large fever hospital.

Without entering at length into the pathology of these two divisions of fever, which have been elaborately described in Dr. Jenner's well-known monograph, it will be necessary to give a brief sketch of the diagnostic marks of each, as bearing upon their treatment.

The *typhus* fever is characterized by its very contagious nature, by the greater prevalence of cerebral symptoms, by the presence of a dark mulberry rash, persistent, and not fading on pressure, and by the absence of disease of Peyer's glands.

The *typhoid* fever is characterized by its comparatively non-conta-

gious nature; by the less development of cerebral symptoms, by the presence of a light, rose-coloured rash, chiefly appearing on the trunk, fugacious, disappearing temporarily on pressure; by the existence of disease of Peyer's glands; by the existence, more or less severe, of diarrhœa; by a blown condition of the abdomen; by gurgling in the right iliac fossa.

Although certain forms of these diseases approximate to one another in a greater or less degree, yet it is very easy to distinguish the well-marked cases of each.

A patient with well-marked typhus fever has an appearance of great depression; his skin, especially upon the trunk and limbs, is covered with a multitude of dark purple, patchy spots, very much resembling measles, and in certain cases liable to be mistaken for that disease; his tongue is brown, dry, and furred; his pulse, in the advanced state of the case, is small, rapid, and irregular.

A patient with typhoid fever does not in general exhibit such well-marked depression; and, indeed, his appearance is so deceptive, that it might sometimes be imagined that he was not suffering from serious disease. A few rose-coloured spots are scattered over his abdomen and chest; these fade away, and are succeeded by others more or less numerous, but never resembling the patchy, measly rash which is seen in typhus; the tongue is usually dry, glazed, and of a mahogany colour; the pulse sometimes continues for a long time rapid and firm; diarrhœa is usually a marked symptom, and the motions are copious, watery, and in extreme cases bloody; the belly has a peculiar blown appearance, and there is gurgling in the right iliac fossa, which is, no doubt, due to fluid in the cœcum.

I repeat, that these appearances and symptoms in typhus and typhoid fever are relative and not absolute marks of distinction; and it is quite possible that all the symptoms may not be observable in every case. I may observe, further, that in typhus there is marked tendency to cerebral disturbance: in typhoid the abdominal symptoms preponderate; typhus fever is propagated by contagion; typhoid is caused by local and endemic influences.

The *treatment* of fever may be divided into two heads, viz., that which is applicable to both kinds, and that which is suitable especially for each. The general treatment will first be noticed.

One of the remedies which has been most loudly extolled in the treatment of fever is *blood-letting;* and it is deeply interesting to compare the former doctrine and practices in relation to this powerful agent with those entertained in the present day.

Dr. Southwood Smith, writing in 1830, and viewing fever as a form of inflammation, strongly advocates the necessity of blood-letting. "The Physician," says he, page 381 of his book on Fever "in the first stage of fever, armed with his lancet is to his patient what the fireman with his engine, before the flames have had time to kindle, is to a building that has taken fire. At this early stage, the former

can check inflammation with almost as much ease and certainty as the latter can prevent the flames from bursting out. On the contrary the Physician who is called to treat inflammation in the latter stage of fever is in the position of a man who arrives with the apparatus for saving the house when its stories have been already consumed, and its roof has fallen in. Bleeding in fever cannot be performed too early. The very first moment of excitement, could that be discovered, is precisely the moment when the employment of this powerful remedy would produce the greatest effect. The earlier the bleeding, the greater will be the impression made upon the disease, and the less upon the patient; or, the more effectually will the inflammatory action be stopped by the loss of the smallest quantity of blood."

Now in quoting this passage, which inculcates doctrines so much at variance with those of the present day, and which are now entirely opposed to the practice of this distinguished Physician himself, I accuse Dr. Southwood Smith of no inconsistency. It is not he who has changed his opinions, but it is nature who has altered the type of disease; and this remark applies not only to the pathology of fever, but to that of many other diseases.

About the year 1830, when Dr. Southwood Smith's book on Fever was written, a change was coming over the type of disease; and instead of affections requiring vigorous and timely depletion, came maladies accompanied by rapid sinking of the vital powers. They who were in practice about that period, will recollect cases of the Synocha of Cullen; the hot, burning head, the hot skin, the throbbing heart, the quick and full pulse; and will remember that a copious abstraction of blood would relieve the symptoms, and in some cases even apparently cut short the disease. But he who seeks among the numerous cases admitted into the Fever Hospital or elsewhere for a fever so characterized, or likely to be so relieved, will seek in vain, for a wholly different disease has taken its place. Besides fevers, diseases new to mankind, or at any rate imperfectly and obscurely described by former authors, have swept over the earth during the present century; in 1832 came the cholera into this country, a disease not unlike fever in its pathology, inasmuch as it seems to consist of a decomposition or some other obscure condition of the blood, and is moreover, not unlike the worst forms of typhus fever in its rapid fatality. In 1833, the influenza, an aggravated form of catarrh, and accompanied and followed by a marked prostration of the powers of life, seized upon thousands of the population, and although not so rapidly fatal as cholera or typhus, yet hurried away from the scene of life the very young, the old, and the debilitated; and attacking persons in the flower of age, often laid the foundation of irreparable mischief. Still later, the plague of boils has visited our land, accompanied by depression of vital energy quite disproportionate to the local disease. Even the forms of inflammation in which blood-letting was, and in certain instances, still is, the acknowledged remedy, have changed their type and require

a very cautious, instead of a bold and vigorous, application of that kind of depletion. The cases of pneumonia now requiring the loss of blood are comparatively few, and in the treatment of certain forms of this inflammation, even carbonate of ammonia, generally considered as a stimulant, has been employed with no inconsiderable success.

[The treatment of fevers will vary very much, depending upon their cause and course. We will endeavour to point out the distinctive plans to be pursued in the two forms of Typhus and Typhoid.]

Typhus Fever is recognized in its early stage without much difficulty: there is a rapid and rather full pulse at first, a brown tongue, great thirst, and more or less delirium; the bowels are generally confined; there is a characteristic mulberry rash. The bowels should be opened with a drachm or two of castor-oil; the thirst should be allayed by toast-and-water; a mixture should be prescribed containing spirits of nitric ether, solution of acetate of ammonia, and camphor mixture. If there should be great delirium, much relief will be obtained by shaving the head, and a blister should be applied to the nape of the neck. As the disease advances, the pulse, retaining its rapidity, most probably loses its fulness, and as soon as this is observed, beef-tea and wine should be administered in small quantities often repeated, and a mixture containing the carbonate of ammonia, should be substituted for, or added to, the mixture just described. If the symptoms of sinking should increase, which is very often the case, and is indicated by a feeble, fluttering, and irregular pulse, trembling of the limbs, and muttering delirium, then brandy should be administered pretty freely in addition to the wine, and strong beef-tea should be frequently given. In addition to the carbonate of ammonia, the stronger diffusible stimulants should be prescribed, as the spiritus ammoniæ aromaticus, the spiritus ætheris compositus, and a modification of the mistura spiritus vini Gallici. It is only by a vigorous adoption of these measures that life can sometimes be saved; and, indeed, it is perfectly extraordinary how, under circumstances apparently desperate, the patient has been restored by an unsparing use of these and similar stimulants.

The use of opium in typhus fever must not be passed over without a remark upon its great value in certain stages of this disease. In the early period, this drug would be injurious; in the latter it is useless, but where there is great restlessness and irritability, together with great weakness, the use of opium is invaluable; it quiets the patient, procures him sleep, and raises the pulse. The usual form of administration of this medicine at the London Fever Hospital, is the tincture, given in doses of ten minims, and repeated if restlessness is not relieved.

In Typhoid Fever the symptoms are by no means always so well-marked as in Typhus, and indeed the early stages of this disease are recognized with difficulty, and the malady steals on in a most insidious

manner. In other cases, however, the symptoms of fever are sufficiently evident: there are, the hot head, the greater or less delirium, the thirst, the full and rapid pulse. In this fever there is less tendency to delirium than in typhus, the progress of the disease is not so rapid, the danger from collapse not so imminent, the abdominal symptoms much more evident. In the early days of this disease, the same treatment may be adopted as is recommended in typhus; the constipation, which is often a marked symptom, is to be overcome by small doses of castor-oil, and a mixture may be given containing solution of acetate of ammonia and camphor mixture. It must be particularly remembered that, in this disease, there are inflammation and ulceration of Peyer's glands, and that the external indications of this affection are to be found in the rose-coloured spots scattered over the chest and abdomen. Our attention must, therefore, be especially directed to the detection and repression of abdominal disease. The abdomen is often hot and painful on pressure, and there is sometimes obstinate constipation, and frequently diarrhœa; the latter symptom being often severe, and generally very alarming. In combating these abdominal symptoms, a cautious employment of depletion, and the use of alteratives, will generally be found of great service. Notwithstanding what I have written upon the danger of blood-letting, it will often be advantageous to apply some leeches over the abdomen, when there are great heat and pain over that region; but it must be especially noted, that this measure is far better borne in private practice, or in establishments for the general treatment of disease, than in Fever Hospitals, where, as formerly remarked, depletion is attended with danger. Besides the application of leeches, great comfort is afforded to the patient by placing a large warm poultice over the whole abdomen, and various forms of counter-irritation are often attended with beneficial effects, the principal of them being the use of blisters, or the acetum cantharidis, and epithems of warm turpentine. The internal remedies to be employed, for the purpose of controlling the abdominal disease, are small and repeated doses of mercury; again adverting to the fact, that this mineral must be used with great caution, and is less available in hospital, than in private practice. The administration of two or three grains of hydrargyrum c. creta, with as many of the pulvis ipecacuanhæ compositus, every six hours, is a useful remedy for checking the inflammation of the intestinal glands, and regulating the secretions. But it often happens that diarrhœa, which is a concomitant of this disease, sets in with great severity, and by its drain upon the system, threatens to carry away the patient. Under these circumstances, the chalk mixture will often be found efficacious, and tincture of catechu or of kino, with a few drops of tincture of opium may be added, or the pulvis kino compositus, or the pulvis cretæ compositus c. opio may be given. But, perhaps, the most efficient remedy in this state of the disease is the acetate of lead, and it may either be given internally in grain doses, or

(what is a very valuable mode of administration) may be injected into the rectum as an enema, with solution of starch and some tincture of opium. By this proceeding, which is very frequently adopted at the Fever Hospital, the most serious cases of diarrhœa are often relieved, and the lives of the patients are saved.—*Med. Times and Gazette, Feb.* 16, *p.* 160; *and March* 8, 1856, *p.* 229.

2.—*On Typhus Fever.* By Dr. Gordon, Physician to the Hardwicke Fever Hospital.—[While Dr. Gordon holds the distinctness of typhus and typhoid fever to be of the greatest practical utility he would subdivide typhus into maculated and non-maculated, founding the division on two great changes which take place in the blood.]

In the maculated typhus fever we have always in the eruption proof of the excessive fluidity of the blood; we are unfortunately seldom without some additional proof, either in high-coloured and albuminous urine, or expectoration tinged with blood, or the more alarming epistaxes and intestinal hemorrhages; in the non-maculated typhus, on the contrary, we have no evidence of excessive fluidity of the blood, but every sign of an increase in the quantity of fibrine. Modern pathology has completely set aside the idea so long entertained, that the amount of fibrine was a representative of the active state of the different vital processes, and that, therefore, its abundance was indicative of great vigour and strength. It would be out of place to attempt here any enumeration of the diseases or morbid conditions in which the fibrine has been found to be increased; let it suffice to say, that such a condition is found not merely in the different forms of rheumatic disease, in which we are so familiar with its increase, but also in other febrile ailments, such as erysipelas, scurvy, &c., &c.; and knowing, from the researches of Andral, that loss of blood does not tend to diminish the relative proportion of fibrine, but to increase it, we conclude that an increase of fibrine may also take place when a deficient quantity of blood is formed; we have then a physiological subdivision of typhus fever into two classes, both being essentially a blood disease,—but in one class, the fibrine of the blood being in excess; in the other, the fibrine being exceedingly deficient: in other words, we have a maculated and a non-maculated form of typhus fever, and the condition of the blood constituting the essential difference between the two forms.—*Dub. Hosp. Gazette, Dec.* 15, 1856, *p.* 343.

3.—ON THE TREATMENT OF FEVER BY LARGE AND FREQUENTLY REPEATED DOSES OF QUININE.

By Dr. Thos. B. Peacock, Assistant Physician to St. Thomas's Hospital.

[This method of treatment was first brought before the profession in 1851, by Dr. Duncan of Liverpool. It has since that time been tried by many very eminent practitioners and with varying results. In the

hands of some it has entirely failed, while with others it has been equally successful. Dr. Hughes Bennett, Dr. Christison, and Dr. Robertson, of Edinburgh, have reported unfavourably of it; Dr. Graves of Dublin, Dr. M'Evers of Cork, Mr. Hayward of Liverpool, and Mr. Fletcher of Manchester, have obtained the most beneficial results from its employment.]

The method of treatment adopted by Dr. Dundas, is as follows:—an emetic is first administered, and then ten grains of quinine are given every two hours till the symptoms subside, or till tinnitus aurium or deafness supervene, when the remedy should be stopped. After an interval of about eight hours, another emetic should be given; and, after a further period of eighteen or twenty-four hours, the quinine treatment should be recommenced. If there be restlessness or want of sleep, a full dose of liquor opii sedativus should be given, with a few drops of nitric acid; and wine and other support should be administered as required.

The period during which the large doses of quinine were usually repeated, in Dr. Dundas's practice, is not stated; but in two cases, which he quotes as examples of the beneficial operation of the remedy, three doses only were exhibited. The precise plan, however, recommended by Dr. Dundas has been more or less deviated from by all the Practitioners who have reported the results of their experience, both as regards the dose in which the quinine was administered, and the frequency with which the remedy was repeated.

Dr. Goolden gave in one case 10 grains every two hours for eighteen times, in another 8 grains every two hours; but he does not mention how often the latter one was repeated. Dr. Stevenson in one case administered 12 grains every three hours for twenty times, and afterwards continued 3-grain doses every four hours for about two days longer. Mr. Glazebrook gave in one case 8, in another 15, grains every two hours. Mr. Hayward exhibited the remedy in doses of 4 or 5 grains, and never exceeded 7 grains, every two hours. Dr. Gee and Mr. Eddowes gave 3 to 10 grains every two or three hours. Dr. Bennett in one case administered 10 grains every two hours for five times; in another, at first 10 grains every two hours for seven times, afterwards 5 grains at the same intervals for five times; in a third case, he gave 10 grains every two hours for six times, and then, at first 10, and afterwards 13, grains for a dose, at the same periods; but the time during which the remedy was continued is not mentioned. Dr. M'Evers exhibited the remedy in the doses recommended by Dr. Dundas, giving in one case 10 grains every two hours for six times in one day, and then every three hours for four other times; in another case every two hours for three times in one day, and the following day three other doses at the same intervals; in a third case 10 grains every two hours for five times in one day, for six times on the following day, and for four times on the third day. In a fourth case he gave 10 grains every two hours for two days, and during the

third day the same doses every four hours. In the cases observed by Dr. Barclay, one patient took 10 grains every two hours for ten times, a second 20 grains every six hours for three times, two others 20 grains every four and every six hours for eight times; and a fifth 20 grains every three hours for nine times. Mr. Fletcher in one case gave 12 doses of 5 grains each to a girl of 12 years of age, at intervals of two hours; to an adult he gave 6 grains every three hours, but the precise number of doses given is not stated; and to a third patient, who died of pneumonia, he exhibited 6 grains every three hours for five days, after which antiphlogistic treatment was had recourse to.

The different writers who have alluded to the effects produced by the employment of the large doses of quinine agree generally in their reports. Dr. Dundas mentions that, after the exhibition of three or four doses, the specific influence of the drug is generally manifested by the occurrence of vertigo, tinnitus aurium, deafness, and diminished frequency of the pulse; to these symptoms Dr. Barclay and Dr. M'Evers add vomiting as of occasional occurrence; and the former gentleman mentions that in some cases the depressing influence of the drug on the heart and arteries are the only obvious effects. Confusion of ideas, torpor, and more or less coma, are also referred to, as resulting from the use of the remedy; but, as justly stated by Dr. Barclay, as these symptoms in many cases naturally ensue with the progress of fever, it is sometimes difficult to say how far they may have been referrible to the one or other cause. Dr. M'Evers mentions the physiological effects of the quinine as manifested in one case at the end of three doses, and as recurring on the following day when the same quantity had been given. In a second case, they appeared after the exhibition of fifteen doses in three days, and in a third after twenty-four doses given in two days. The symptoms mentioned are similar to those which, as related by M. Briguet and others (quoted MM. Trousseau and Pidoux), were observed in the treatment of the typhoid fever of Paris by doses of quinine varying from 1 to 3 or 4 grammes (15·4 to 61·6 grains), exhibited during the day, according to the severity of the disease. M. Briguet arrived at the conclusion that quinine was useful in the ataxic form of typhoid fever, assuaging the watchfulness and delirium; but that it was prejudicial in the adynamic form, with great prostration of strength.

I have before mentioned that Dr. Dundas, in his earlier communications, spoke of the manifestation of the specific influence of the quinine, as indicating the necessity for the discontinuance of the drug, at least for a time; but Dr. Gee and Mr. Eddowes do not regard the occurrence of tinnitus aurium and deafness as always requiring the suspension of the remedy; and Dr. Dundas, in a subsequent allusion to their opinion on this point, seems disposed to concur with them.

The class of cases in which the quinine treatment was tried by the gentlemen to whose reports I have referred, appears to have differed considerably. Dr. Goolden states that the eight cases he mentions

all presented symptoms of typhus gravior. In Dr. Bennett's patients the fever was in two of the typhoid and in seven of the typhus form. Mr. Hayward's cases are stated to have been all of the typhoid type. Dr. Gee's and Mr. Eddowes' were both typhus and typhoid. Dr. M'Evers' were maculated typhus. Dr. Barclay's were one, or perhaps two cases of typhus, and sixteen cases of typhoid; and Mr. Fletcher's cases were typhoid.

The results of the treatment in the practice of these different gentlemen were also very various, but it will be observed that they bear no relation to the dose in which the remedy was employed, nor to the frequency of its exhibition; some of those who most exactly followed Dr. Dundas's plans having met with unsatisfactory results, while others, who have reported most favourably of the treatment, administered the remedy in much smaller doses and at longer intervals. Mr. Hayward states, that he lost only two patients, and these were children, who had taken the remedy very irregularly; thus he lost only one patient in $39\frac{1}{2}$, or 2·5 per cent., while, in the practice of Dr. Gee and Mr. Eddowes, 13 cases proved fatal, or 1 in $6\frac{2}{3}$ nearly, or 14·7 per cent., a rate of mortality high, even with the large proportion of complicated cases which these gentlemen report to have been included in the cases treated. Dr. Goolden's and Dr. M'Evers' patients all recovered; of Dr. Bennett's cases, two, one of typhoid and one of typhus, died; of the cases reported upon by Dr. Barclay, two also proved fatal. The mortality among the patients treated by Mr. Fletcher is not stated.

The theory on which Dr. Dundas bases his treatment is: 1st. That intermittent, remittent, and continued fevers are mere varieties of the same disease; and that as bark will generally arrest the former affections, it "ought to, and will, generally, arrest" typhus. Though, as an ague will sometimes resist for many days the employment of quinine and afterwards yield, it may be expected to be so also with typhus; and, 2ndly, that when quinine is administered in large doses in typhus, if not curative, it is "never followed by the slightest ill effects."

It will thus be seen that Dr. Dundas exhibits quinine in fever, not merely as a tonic, with the view of effecting a general improvement in the symptoms, or as an auxiliary to other treatment, as bark was formerly given by various physicians, and as quinine has more recently been employed in small doses; but that he claims for it the power of cutting short the disease, and that not only in one particular form of fever, or under certain peculiar circumstances, but in all cases. He believes, indeed, that by its use "the time approaches when the treatment of typhus fever, after ages of vacillation, will be established on the same sure and satisfactory basis as that on which the treatment of ague now rests."

The questions, therefore, which require consideration are:—1st. Whether quinine, when administered in large and frequently repeated

doses, does possess the power of cutting short an attack of fever; and, 2ndly. Whether, when so exhibited, its use is otherwise objectionable.

It is not necessary, in discussing these questions, to inquire how far the theory upon which Dr. Dundas bases his treatment is correct; but it may safely be contended, that a generalization so sweeping as that which he makes, requires to be supported by other and more satisfactory evidence than a simple appeal to the writer's experience. The observations which have of late years been so carefully collected in various localities are opposed to this view, and can only be set aside by still more extensive and equally accurate investigations. For my own part, after having paid much attention to what has been written on both sides of the question, and having carefully observed the several forms of fever which fall under our notice, in this and the neighbouring countries, in the localities which afford the best opportunities for studying their peculiarities—Edinburgh, Paris, and London—I have entirely adopted the view that typhus and typhoid are specifically distinct diseases. With remittent and relapsing fevers, from their comparative frequency, I am less familiar, and am in doubt what relation those affections bear to typhoid on the one hand, and to tropical fevers on the other.

The views which we may adopt on these points are however unimportant, as regards the inquiry into the power of quinine in arresting the progress of the continued fevers of this country, embracing under that term typhus and typhoid; for, though Dr. Dundas contends for the identity of those affections with tropical fevers, as an argument in favour of their being arrested by treatment, and disavows any idea that the specific fevers attended with eruption can be so checked, we know that even those affections are capable of being arrested and modified by peculiar states of system, and, if so influenced, it may be contended that they might also be amenable to the influence of remedies. If this can be established in reference to the eruptive fevers, there can be little doubt that the power capable of being exerted over the common continued fevers is still greater.

1st. Attacks of measles, or small-pox, or, to a less degree, of scarlet fever, give, in a large proportion of cases, immunity from subsequent seizures, and most probably attacks of typhus and typhoid possess the same power. Vaccination generally prevents the subsequent occurrence of variola. These results must be dependent upon the production of a change in the constitution which renders it altogether unsusceptible to the influence of the virus.

2nd. When previous attacks of these affections do not prevent subsequent seizures, the second attacks are very generally mild, and only of short duration. Vaccination, when it does not protect the patient from variola, usually lessens the severity of that disease; or, what affords a still more obvious proof of its influence, after the symptoms have proceeded, often with violence, to a certain point, causes the

sudden and entire subsidence of the disease. In these cases the change produced by the previous attacks, while it does not render the constitution insusceptible to the virus, prevents the disease being fully developed, or, in other words, renders it abortive.

3rd. We not unfrequently observe persons who have never previously had a given contagious disease, on being exposed to the influence of its virus, suffer from febrile attacks, which, though at first threatening, soon subside, and without presenting any specific characters. Such is often the case with children in schools where scarlet fever or other febrile disease is prevailing; with patients in wards containing fever cases, or with students attending hospital practice. In these instances, from some peculiarity of constitution, with the nature of which we are entirely ignorant, the system is not wholly insusceptible to the virus, but the disease is incapable of being fully developed.

In each of these cases, the results of disease, or of individual peculiarity, are analogous to the effects which may be supposed to be produced by remedies employed as prophylactics, or with the view of arresting diseased action already commenced. It is true that the analogy is not precise, for in the former cases, the peculiarity of constitution, whether natural or acquired, exists before the receipt of the virus; whereas, in the latter, the remedy must generally be exhibited after exposure to contagion, or even after the virus has already begun to manifest itself. There seems, however, sufficient reason to believe that what is, in these instances, accomplished by natural causes, might also be effected by the employment of remedial agents. The analogy is still closer as regards the influence often exerted by vaccine introduced into the system, after exposure to the contagion of variola, in either arresting the progress of the disease, or materially lessening its severity. Though, therefore, we do not at present know any remedy which can certainly be referred to, as possessing the power of arresting the progress of a specific febrile disease, there is nothing unphilosophical in our seeking to obtain such; and if this be granted as to the specific diseases, it will be much more readily admitted as to the ordinary continued fevers. The assertion that "we can guide, not cure a fever," is, indeed, a mere expression of the extent of our present practical knowledge, not a rule which should be allowed to deter us from the search to extend it. The question as to whether continued fever be, or be not, capable of arrest, is one which is fairly open to investigation, and which must be decided, not on theoretical grounds, but by experimental researches into the operation of remedies, which may be supposed to possess the power of checking the disease.

In prosecuting such experimental investigations we may employ two methods:—

1st. We may have recourse to the special treatment in a portion of the cases which come under our care, and follow the ordinary method with the remainder, without reference to the particular type or

character of the two sets of cases. We may then estimate the respective advantages of the modes of treatment pursued, by the relative duration and mortality of the disease under the two systems, —or,

2ndly. We may employ the treatment only in cases which have already assumed a definite form, with the ordinary course and progress of which we are familiar. We can, therefore, by carefully watching the phenomena of the disease, and the operation of the remedy, judge how far its effects are beneficial.

In following both these methods there are difficulties to contend with, for we can never wholly confine ourselves to the use of one remedy, and consequently are apt to be misled in ascribing effects to its use which are due to other causes; but there are also special objections which apply to each plan.

1. In employing the first plan, it is necessary that the two sets of cases compared should be as nearly similar as possible. The ages and sexes of the patients, the periods of the attack at which the treatment is commenced, and the intensity of the disease, should all correspond. The observations should also be collected in the same locality, in the same sphere of practice, and during the same period. All these circumstances materially influence the rate of mortality in fevers, independently of the treatment to which the cases are subjected.

The observations of Mr. Hayward, and those of Dr. Gee and Mr. Eddowes, afford examples of the very different results which may be obtained from similar treatment in the same locality, but under different circumstances. The former gentleman, it will be remembered, had only a mortality of 2.5 per cent. among the cases of fever which he treated with quinine, while the latter lost 14.7 per cent. of their cases. These different results are, however, at once understood, when it is known that Mr. Hayward's observations were collected in parochial and private practice ;—Dr. Gee's and Mr. Eddowes' in a fever hospital. The practice of the former gentleman, therefore, included cases of all degrees of intensity, while the cases treated by the latter were necessarily such as were selected for their severity, to be sent to the hospital. We are all of us familiar with the different types of fever in different localities and at different periods, and thus we obtain very various results while pursuing similar plans of treatment; and it is well known that the mortality at the commencement of an epidemic exceeds that at its decline. It is necessary, therefore, in investigating the power of any remedy or the advantages of any system of treatment, that the cases treated should be similar in all these circumstances before we can safely subject our observations to analysis, or depend upon the inferences which we may deduce from them. Provided, however, the sets of cases do correspond, the inferences founded upon them possess considerable exactitude; but there are still objections which apply to this plan, and which can only be avoided by adopting

the second method, or by administering the remedy in cases of fever, the precise form and type of which are ascertained.

1st. It is impossible to predict, at the commencement of an attack of fever, what will be its duration, and consequently to decide, if the disease subside suddenly, whether it have done so from the effect of the remedy employed, or only in accordance with the natural course.

2ndly. Whether we suppose the difference between the typhus and typhoid fevers to be truly specific or only typical, they are such as must certainly affect the curability of the disease; and it is, therefore, quite possible that a remedy which may be very useful in the one form, may be valueless, or even injurious, in the other.

3rdly. The different forms of fever are constantly modified by a variety of different causes, and are liable to various complications, which may all affect the influence which any given remedy may exert Thus, owing to accidental circumstances, we may obtain results from a given system of treatment which would be entirely erroneous when applied to another set of cases. We avoid these sources of error by adopting the second method of investigation, or by watching the effects of the remedy in cases which have already assumed definite characters. If, however, we were only to employ the treatment in such cases, we should be testing its power of checking the disease, under the most unfavourable circumstances; for it is justly contended by Dr. Dundas, that the probability of our arresting the progress of an attack of fever will be greater the earlier the remedy is had recourse to. This supposition is in accordance with what we know of the power of vaccine in preventing small-pox. Thus, if vaccination be practised immediately a person is exposed to the contagion of variola, it will often take effect, and either check or mitigate the disease; whereas, if deferred till a later period, the influence of the vaccine is entirely resisted and the variola runs its course unmodified.

The only means of avoiding all these various sources of error, is to employ both methods of investigation, and, indeed, while in some cases we have a choice of the plan which we may adopt, in others we have but one course open to us. In private practice we generally see our patients at an early period, and may at once exhibit the remedy without waiting for the disease more fully to develop itself. In hospitals, on the contrary, we can rarely commence our treatment till after the disease has been several days in progress, when the chain of diseased action has fully manifested itself, and thus the second plan is that which is alone capable of being followed.

In the following portion of this paper, I propose to relate the results of the employment of the quinine treatment in fever, both as deduced from the records of St. Thomas's Hospital, and as observed by myself, in cases in which I have followed, more or less exactly, Dr. Dundas's mode of treatment.

[In one case of true typhoid character, ten grains of quinine were given every six hours. Under this treatment, the disease pursued a mild and regular course, and the patient was well in about a month. Many other cases were treated in a similar manner, the dose of the quinine varying from five to fifteen grains according to circumstances.]

In all these cases the most marked effect produced by the large doses of quinine was the depression of the power and frequency of the pulse. In one case the beats were only 48 in the minute on the fourth day after the commencement of the remedy, and when sixteen 10-grain doses had been exhibited; and, in this instance, the only other effect produced by the drug was slight frontal headache, and singing in the ears, and the patient steadily improved during its employment. In two cases the torpor and depression of strength increased under the use of the remedy; but, as these symptoms subsided, while it was still persevered in, it is not clear whether they should be ascribed to the action of the quinine or to the natural progress of the disease. In one case only was there more than transient headache or vertigo from the use of the remedy; and this was also the only case in which there was very marked tinnitus aurium. In one case there was decided deafness, but, in this instance, the hearing was impaired from the time of the patient's admission. In one of the only two cases in which vomiting occurred, an emetic had been given at the commencement of the treatment. In one case the diarrhœa, previously present, was considerably aggravated under the use of the quinine.

The general results of the treatment may be stated as follows:

1. In one of the cases of typhus, the quinine was certainly not productive of any benefit, and probably added to the torpor and depression of strength. In the other case of typhus it produced the most marked depression, and the patient was only saved by its discontinuance and the liberal exhibition of stimulants. In both cases, though the patients recovered, the disease seemed to follow its natural course, and to be in no degree curtailed in duration by the exhibition of the remedy.

2. In one case of typhoid, the depression of power and torpor increased under the use of the quinine, but the notes are too imperfect to allow me to speak confidently as to its effects. The patient recovered after an illness of average duration.

3. In two other cases of typhoid, the remedy appeared to exert neither beneficial nor injurious effects; the disease followed its usual course, and the patients recovered.

4. In another case of typhoid, it certainly added to the torpor and depression. The remedy was only exhibited in small doses, and for a short period, and was entirely discontinued after six doses had been given, in the course of a day and a-half, and stimulants and other means were then freely had recourse to; the prostration and torpor, however, increased, and the patient died comatose.

5. In the fifth case of typhoid, in which the affection was combined with bilious complication, the quinine was decidedly beneficial, the patient steadily improving under its use. The attack was certainly of shorter duration and less severity than might have been expected from the urgency of the symptoms when the treatment was commenced; but, in this case, the amendment was gradual, and no sudden improvement in the symptoms at any time occurred.

In all the cases the patients had stimulus and support as required, and other accessory treatment, such as astringents, aperients, and anodynes, &c. While also the quinine was exhibited in the various cases in different doses and at various intervals, the different results bore no relation to any of these circumstances.

The facts and observations which I have now related must only be regarded as a contribution towards the solution of the question of the usefulness of large and repeated doses of quinine in the treatment of the continued fevers of this country. So far, however, as they go, they are opposed to the views of Dr. Dundas, that quinine possesses the power of cutting short the attack; on the other hand, they indicate that the remedy is, in some cases, beneficial; but only as an auxiliary to other measures. It remains to decide, by more extended observations, in what forms of fever, and under what peculiar circumstances, local and individual, the remedy may be advantageously employed; and whether the quinine is more useful in moderate doses at distant intervals, or in the large and frequently-repeated doses which have been recommended.

There is, doubtless, a mean between the results arrived at by different observers which correctly represents the usefulness of quinine in fever; and I am disposed to believe that the very discrepant statements as to its effects, before quoted, may be reconciled by reference to the various characters of fevers in different localities and seasons, and under different circumstances. From an observation before narrated, and from somewhat extensive experience of the use of quinine in smaller and less frequently repeated doses, I feel satisfied that the remedy is useful in the bilious type of typhoid, and also in cases which display a remittent character, or have a tendency to relapse. During the course of last summer, the fever which prevailed was very frequently followed by relapses, and in them quinine was eminently beneficial. There is also a form of typhoid which is of frequent occurrence, in which the fever, though never very intense, is extremely prolonged, day after day elapsing without any material change in the symptoms. In affections of this description also, quinine is productive of marked advantage, and much accelerates convalescence. My experience, however, of the use of quinine in such cases, is only of its employment in doses of three to five grains three or four times daily. I am not able to say whether the remedy is more useful in such doses, or when exhibited so as to produce the markedly sedative operation on the vascular and nervous systems, indicating the full physiological action of

the drug, and to which the term cinchonism has been applied. Possibly, the different types of fever may affect the dose which it is desirable to employ—the larger doses being preferable, from their sedative effects, in the more sthenic forms; and the smaller, in the adynamic fevers which require a tonic treatment.

It only remains for me to inquire how far Dr. Dundas is correct in his assertion that the quinine treatment "when not curative, is never followed by the slightest ill effects."

Dr. Goolden mentions that in one of his cases, each dose of the quinine produced headache and excitement, and the remedy was in consequence discontinued after the third dose. In two cases under Dr. Robertson, it is reported to have caused decided coma, and I have already alluded to Dr. Barclay's remarks on this symptom as observed in one of his cases. In one of Dr. M'Evers' patients, it was necessary to discontinue the remedy, from its producing violent headache; and as before mentioned in two of my own cases, it probably increased the depression of strength and tendency to coma, and in two others certainly produced those effects. Contrary, however, to the conclusions of most English observers, M. Briquet infers, that the remedy is useful in calming the watchfulness and delirium of fever; while he agrees with them in regarding it as aggravating the tendency to coma. These facts are certainly sufficient to qualify the assertion of Dr. Dundas, and knowing as we do, the serious effects which have been found in France, to follow the use of large doses of quinine, (larger it is true than those recommended by Dr. Dundas, as three or four grammes, 46·2 to 61·6 grains), as related by Bretonneau, Trousseau, and others, we should, at least, exercise great care in employing them. With proper caution, however, and a full knowledge of the physiological action of the drug, should future experience prove, that to obtain the full benefits of the remedy it is necessary to exhibit it in the larger doses, there can be no just objection to its being so used.—*Med. Times and Gaz., Jan.* 5, *p.* 3; *and Jan.* 19, 1856, *p.* 56.

4.—*Sulphate of Quinidine in Intermittent Fever.* By Dr. C. B. Guthrie.—The thirteen cases here reported were treated with quinidine, the subsalt of the new Bogota bark, called by writers *China Bogotensis.* This new alkaloid differs from quinine, and has been esteemed as of less value in the treatment of periodic diseases. This bark is found in the province of Fusagasoga, some twenty-five miles from Bogota, and is generally recognized under the common name of Bogota bark, a name applied commercially to all barks from that region of South America, though including seven or eight varieties, many of which contain both quinine and cinchonine. These cases were reported by Dr. Foote, of Texas, who remarks:—"In none of the thirteen cases did I hear any complaint of its affecting the head unpleasantly, as quinine so often does, though in many instances given

in larger doses than we usually administer quinine." He also remarks that from the effects of the quinidine, as exhibited by the cases reported, we are bound to acknowledge its great antiperiodic power. The question with the medical profession is not alone whether quinidine has antiperiodic properties, but whether it has not this therapeutical effect without the disagreeable adjuvant found in the quinine, and also whether the use of this alkaloid, the product of a bark not monopolized by the English government, may not be less expensive and quite as certain as quinine.—*New York Journal of Medicine.—Dub. Hospital Gazette, Jan.* 1, 1856, *p.* 364.

5.—THE TREATMENT OF SCARLATINA ANGINOSA.

By Pye H. Chavasse, Esq., F.R.C.S.—(Read before the Birmingham Medico-Chirurgical Society.)

[The author of the present paper has had great experience of practice among children. The result of his treatment of scarlet fever has been so uniformly successful that he has not lost a single case for upwards of seven years. He says :—]

The system I adopt, in a case of scarlet fever, is to keep the bedroom cool—I may say cold—and to have a thorough ventilation through it : I, therefore, throw open the windows, be it winter or summer, and have the curtains and valances of the bed removed. If it be winter time, I allow the patient to have one blanket and a sheet ; if it be summer time, a sheet only to cover him. If the throat be not seriously affected, I merely order a narrow strip of flannel once round the throat. If the tonsils be much enlarged, I apply a barm and oatmeal poultice to the throat, changing it night and morning. I prescribe an acidulated infusion of roses mixture, that is to say, infusion of roses, with an excess of acid, made palatable with an additional quantity of syrup, to be taken every three or four hours. This is the only medicine I give. Where the child is old enough, I find roasted apples, mixed with raw sugar, very grateful to the patient.

Here let me pause, to advise my medical brethren always to make medicines for children pleasant. The administration of nauseous medicine to children oftentimes causes sickness, disgust, and irritation, which frequently do more harm than the medicine does good.

But to return to our subject : I avoid purgatives in scarlet fever. I never, on any account whatever, give a particle of opening medicine for the first ten days at least. It is my firm conviction, that the administration of purgatives in scarlet fever is a fruitful source of dropsy, disease, and death. When we take into consideration the sympathy that there is between the skin and mucous membranes, I think that we should pause before giving irritating medicines. The irritation of purgatives on the mucous membrane may cause the poison

of the skin disease to be driven internally, to the kidneys, throat, pericardium, or brain. You may say, Do you not purge if the bowels be not opened for a week? I say emphatically, No!

Now with regard to food. If the infant be at the breast, keep him entirely to it. If he be weaned, and under two years old, give him milk and water, and cold water to drink. If he be older, give him toast and water, and plain water from the pump, as much as he chooses; let it be quite cold—the colder the better. Weak black tea, or thin gruel, may be given, but caring little if he take nothing but cold water, unless he be an infant at the breast. Avoid broths and stimulants of every kind.

Now, you must warily watch for a change of temperature of the skin. As long as the skin is hot, the above plan I steadily follow; but the moment the skin of the patient becomes cool, which it will do, probably in five or seven days, instantly close the window, and immediately put more clothes on the bed. But still do not purge.

You will find the acidulated infusion of roses most grateful to the little patient; it will abate the fever, it will cleanse his tongue, it will clear his throat of mucus, it will, as soon as the fever is abated, give him an appetite. I believe, too, the acid treatment has some peculiar properties of neutralising the scarlatina poison. I do not pretend to explain how, or why, or wherefore.

When the appetite returns, you may consider the patient to be safe. The diet must now be gradually improved. Bread and butter, milk and water, and arrow-root, made with equal parts of milk and water, may be given for the first two or three days. Then a light batter or rice pudding may be added; and, in a few days afterwards, a little chicken, or a mutton chop.

Within the last few years, I have had some fearful cases of scarlet fever; but, relying on this plan of treatment, I have given, even in very bad cases, a favourable diagnosis. I have had cases where there have been violent headache and delirium; where there have been immense swellings of the parotid and submaxillary glands; where there have been enormous enlargement and ulceration of the tonsils; where a great portion of the fluid that has been taken by the mouth has escaped down the nostrils; where there has been a purulent discharge down the nose, which discharge has in many instances quite excoriated the skin over which it has travelled;—and yet in such cases the patients have invariably recovered.

There is another important regulation I lay great stress upon. I never allow a scarlet-fever patient, even if the attack be mild, to leave the house under the month in the summer, and then not if the wind be in the east or north-east; nor under six weeks in the winter. During the last seven years, I have never had anasarca from scarlatina; and I attribute it entirely to the plan I have just recommended, and in not allowing my patients to leave the house under the month—until, in fact, the skin that has peeled off has been renewed. Dr.

Watson, in his valuable lectures, gives some excellent advice on this subject. From the sixteenth to the thirtieth day I watch the case assiduously, to assure myself that there be no dropsical approach, carefully examining the urine, ascertaining that there be plenty of it, and that it be not albuminous.

Let me now sum up the plan I adopt :—

1. Thorough ventilation, a cool room, and scant clothes on bed, for the first five or seven days.

2. A change of temperature of skin to be carefully regarded. As soon as the skin is cool, closing the windows, and putting additional clothes on the bed.

3. Infusion of roses, with an excess of acid, sweetened, the only medicine to be given.

4. Purgatives to be rigorously avoided for the first ten days at least, and even afterwards, unless there be absolute necessity.

5. Leeches, blisters, emetics, and cold and tepid spongings, inadmissible in scarlet fever.

6. A strict antiphlogistic diet for the first week, during which time cold water to be given *ad libitum*.

7. The patient *not* to leave the house in the summer under the month ; in the winter, under six weeks.

My firm conviction is, that purgatives, emetics, and blisters, by depressing the patient, sometimes cause scarlatina anginosa to degenerate into scarlatina maligna ; for although I have had numerous cases of scarlatina anginosa (my practice being much among children), and some of the cases very severe ones, I have never had, since I have adopted my present plan of treatment, one single case of scarlatina maligna. I have such faith in my present plan of treatment, that if it be duly followed out, I should seldom despair of even the worst of cases recovering.—*Association Med. Journal, March* 15, 1856, *p.* 211.

6.—ON SCARLATINA, AND ITS RELATIONS TO RHEUMATISM, CARDITIS, AND ALBUMINURIA.

By Dr. W. Hughes Willshire, Assistant Physician to the Charing-Cross Hospital, &c.

[The complications of scarlet fever are very numerous, and will be found amply treated of in works on the subject ; but rheumatism is one of those which, though common, has been but very cursorily noticed, excepting within the last few years. In 1851, Betz, of Heilbronn, drew particular attention to it, and went so far as to hint at an essential relation between acute rheumatism in the child and scarlet fever.]

He implies, at least, that an arthritic affection in young children often could not be told from the exanthem in question. That he had seen albuminuria and desquamation of the skin in acute rheumatism

in children who had shown no exanthematous eruption ; and, on the other hand, that the eruption was not an *essential* symptom of scarlet fever, leaving it, therefore, a very difficult, if not impossible, case in which to arrive at a differential diagnosis. In 1853, M. Trousseau stated that he had very frequently met with the complication we are speaking of ; that the arthritic disorder sometimes, though but rarely, became generalized, and attained a high degree of intensity, accompanied by delirium and other nervous symptoms, terminating in death. In 1854, I myself read a paper before the Medical Society of London on Rheumatism in Children, in which I adverted to its union with scarlatina (reported in 'The Lancet,' 1854, vol. i. p. 138) ; and, a few months afterwards, Mr. Haydon, of Bovey Tracey, communicated some very interesting facts in 'The Lancet,' in reply to a commentary, as it were, upon my paper. You will find Mr. Haydon's communication in the first volume of that journal for last year. This gentleman has had some very corroborative experience, and states, that although he cannot coincide in the views I have detailed of Betz, he admits there is a remarkable analogy between the phenomena, especially the secondary ones of the two diseases ; and that so closely does he consider the two related, that he makes it a rule, on the decline of the rash in scarlet fever, to administer lemon juice. I strongly advise you to read Mr. Haydon's remarks, and then to turn to Betz's paper, which you will find in the eighteenth volume of the 'Journal für Kinderkrankheiten.' In both essays you will find how easily certain cases of the two affections—I say certain cases, mind—might be confounded together.

If we were to take extreme forms of the two diseases—viz., on the one hand, an almost universally bright-red child, with sore-throat, strawberry tongue, who had been known to have been with other children similarly affected, and on the other hand, a pallid, scrofulous child, without any cynanche, with a white-coated, moist tongue, and swollen and painful joints, there could certainly arise, I should say, no difficulty about the matter. But you must recollect scarlet fever is not always of this characteristic appearance ; the sore-throat may be next to nothing, or absent; the rash only evident about the joints, which may be a little puffy and painful ; the tongue but moderately and simply coated, and the child not known to have been directly exposed to the zymotic virus. On the other hand, if what is stated be true, albuminuria may be temporarily present in rheumatism, as also, according to Betz, desquamation of the cuticle. Now, in a case presenting such equivocal signs as I have hinted at as possible, I do not know that from these signs alone, and from these only, the differential diagnosis could be perfected. But this I must believe, from my own experience up to the present, that the further course of the malady, together with the commemorative history of the patient would fully help me out of the difficulty. The difficulty, in truth, has not yet occurred to me ; but let me tell you that in India and in

America a somewhat analogous one has happened to others, and from this, and what you will glean from Dr. Betz and Mr. Haydon, it is not impossible we might hereafter have a case occur amongst us, or an epidemic disorder, which should have such a mixture of the symptoms of rheumatism and scarlatina that we should be much puzzled to give it a satisfactory name.

A late patient of mine had been surrounded by the scarlatinal poison; she had sore-throat, diffused red efflorescence; the tongue and even breath were those of scarlet fever. The rash subsided, desquamation just began around the neck, when pains of the ankle and wrist-joints came on; the parts were swollen and shining, and a kind of secondary fever was lighted up. Now, whatever might be thought of this latter affection, the former was clearly *not rheumatism*. That there is some obscurity about the exact nature of a disease occasionally attacking not only children, but adults, and marked by arthritic pain and tension often of a severe character, accompanied by a scarlet rash, is plain from the accounts given by some American and East and West Indian practitioners. For instance, in 1824, 1825, and 1847, outbreaks of a disease like the one I have just mentioned occurred in the East Indies. In the summer of 1828, the malady appeared epidemically in some of the southern cities of the American Union, after having previously prevailed in some of the islands of the Gulf of Mexico. In Charleston it spread with great rapidity, ultimately attacking almost the entire population. In this latter city the last occurrence of it that I have found recorded was in 1850, and is alluded to by Dr. Dickson, of South Carolina. In Calcutta, again, during the hot and rainy season of 1853, a variety of the same affection prevailed, and has been well discussed by Dr. Goodeve in the first volume of the 'Indian Annals of Medical Science' for that year, and to which I must refer you. Now, this disease has been called *scarlatina rheumatica* by Cocke and Copland. *exanthesis arthrosia* by Nicholson, and the strange cognomen of *dengue* has been popularly bestowed upon it. I have said that the first account of this disease goes not further back than 1824; but it is proper I should mention that Dr. Dickson, of Charleston, writes as follows:—"I recognise Rush's 'breakbone fever' of 1780 in Philadelphia as the first notice of a malady such as I have called dengue;" and Dr. Waring, of Savannah, alludes also to dengue under the title of "eruptive breakbone."

I cannot go into the details of this peculiar disorder; indeed, I have only alluded to it to show you that there occurs a fever, accompanied by arthritic pains and a red exanthem, whose true relations to scarlet fever yet require clearing up. However, I may just remark, that Dr. Dickson regards dengue as a distinct contagious disease, giving immunity from second attacks, and that it is *not* scarlatina; whilst Mr. Goodeve states that most of the symptoms characteristic of the latter affection found expression in some of the cases occurring in Calcutta. He says, "the fever eruption, reddened mucous membrane

and tonsils, desquamation of cuticle, swelling of hands and feet, state of the tongue, albuminous urine, are all such as go to make up scarlatina ; but it would be premature to assert that the cause is identical with that of scarlatina. I should say that it would require a longer series of observations of several epidemics, with careful examination of all the attendant circumstances, before we could pronounce the diseases to be identical." Again, Dr. Copland affirms, that the disease called dengue " was not a form of scarlatina is shown by the severity of the rheumatic or neuralgic symptoms," &c.; and " that it was not a rheumatic fever was shown by the undoubted propagation of it by infection," &c. I see that in some later observations by Dr. Mackinnon, in the third number of the 'Indian Annals,' he doubts whether any of the epidemics of India described as attended by red efflorescence of the skin can be identified with any of the varieties of the scarlatina of Europe, denies the disease we have referred to to be contagious, and for which, he says, the name of " the red fever" is as good a name as any other.

On reviewing the different accounts given by Indian and American writers of this puzzling affection, the disease appears in certain places, and epidemics, to have had more the characters of rheumatism ; whilst in others it has had more those of scarlatina. The case mentioned may be said to illustrate, so far as my own experience extends in respect to the relations between scarlatina and rheumatism, one form of the arthritic complication—namely, that occurring early in the course of the exanthematous disease. When it so occurs, the specific inflammation about the joints terminates, like primary or idiopathic rheumatism, in resolution or delitescence. But it may take place at a later period of the disease, when all has been thought to be over. It occurs after desquamation has made some progress, and then may terminate in the suppurative crisis. Now, this is peculiar about the rheumatic inflammation generally of young children ; unlike in adults or older children, it may lead to purulent effusions into joints, and also about them. I have known this to occur in several instances, and it is more liable, I believe, to ensue in the secondary rheumatism of scarlatina. This is a fact well known to others. If I recollect aright, Dr. Kennedy, of Dublin, has published something upon it, and Trousseau, I know, states that scarlatinal rheumatism is often more dangerous when localized to a single joint, than when attacking several articulations at one time, as it is then more inclined to terminate in suppuration, and even eventually to result in caries of the articulating surfaces. This circumstance, however, of the arthritic inflammations of infants and young children, not unfrequently terminating in the formation of matter, has led some pathologists to deny the true rheumatic nature of the disease in question. I must confess too, it does seem to me not improbable that the results of pyohæmia, or purulent infection, of phlebitis, umbilical, or otherwise, may, along with other forms of abnormal action, have been occasionally placed to

the credit of ordinary rheumatic inflammation. But Mr. Henry Lee, who has paid great attention to the subject of purulent infection, states that he has seen, as the result of the absorption of sero-purulent fluid from an ill-conditioned abscess, very severe rheumatism, affecting, in same instances. the pericardium and dura mater. In these cases there was occasionally more fluid secreted than in ordinary rheumatism, but in milder examples there was no such distinctive mark ; they are said to have been "in every sign and symptom apparently identical."

I have undoubtedly seen cases in children, which I should not have known from rheumatism, terminate in the suppurative crisis. If it be said, then such cases therefore could not have been rheumatism, the argument is of course settled ; but it appears to me only so by a *petitio principii.* In adults, again, rheumatism does occasionally, however rarely, terminate in the formation of matter. In this case of mine some mischief ensued certainly to the mitral, if not also to the aortic valves. It may be but slight, still there it is, and may lay the foundation for changes in after years connected with the walls of the heart's chambers. The abnormal sound (which some of you have listened to) at the apex is very loud, but this is not proof of the amount of structural mischief at the mitral, for there may be much noise and slight change, and but little noise and great alterations. The former, I hope, is the case here ; but from the pulse being so small at the wrists, my hope is not to be too much trusted to. A German pathologist affirms it to be a general thing in scarlatina for the first sound of the heart to be aspirated or blowing, which is a result of the altered state of the blood, and not of the valves, and is a proof that scarlatina and all its complications arise from one common blood disorder. I presume he must mean to refer only to the sound at the base, and not at the apex (where our worst one is), of the cardiac region. Sounds at the base, may be of hæmic origin, but at the apex they are, I believe, always of structural derivation.

The liability of the heart to become affected during scarlatina has been known for some time. Roux in 1819, and Krukenbergius in 1820, are said by Rilliet and Barthez to have referred to the occurrence of pericarditis in connection with scarlatina and measles. Trousseau says Bouillaud pointed it out ; but certain it is Mr. O'Ferrall, in 1835, detailed to Dr. Graves, of Dublin, how he was obliged to have recourse to leeching, calomel, and James' powder, to overcome acute pericarditis in connexion with scarlatina. Several later writers, as Burrows, Willis, Joy, &c., have noticed this complication ; and not long ago, M. Trousseau stated it as his belief that "many cases of organic disease of the heart, which only become evident at an after period, have had their origin in scarlet fever." But, so far as I know, we are most indebted to Dr. Scott Alison for prominently bringing this matter before our notice, though it has been said that the frequency of the complication has been somewhat exaggerated. You

will find Dr. Alison's original paper in the 'Medical Gazette' for 1845. The case I have mentioned makes the third one of heart complication during scarlatina that I have seen, and here it has occurred in connexion with an arthritic affection. One might, *à priori*, suppose the sequence of the phenomina would always thus present themselves, but it seems that it is not so, as the involvement of the cardiac organ is alluded to by writers, as well as seen by myself, without the arthritic affection having preceded or accompanied it. I find it remarked that in the Stuttgard collection of papers on "Children's Diseases," the occurrence of purulent collections in the pericardium during scarlet fever is mentioned by Von Ammon, whilst effusion of pus beneath the periosteum and in the substance of muscles has been recorded by others. It is, therefore, possible that the rheumatism in this case had, in one sense, nothing in itself to do with the cardiac affection, but that both were the effects of one same and common cause, and that this cause was the same condition of the blood which gave rise to every other manifestation of the scarlet fever.

But it is said that the rheumatism occurs, like the dropsy, from unnecessary or incautious exposure of the child to cold; whereas, in the latter case, we find the disease will come on where no such exposure was known to have taken place. We frequently find this secondary rheumatism occur without any cardiac involvement arising, while the primary form, in children, is very far more apt to include the central organ of the circulation within its grasp than at other periods. Had it been my intention to treat of scarlatina or rheumatism substantively, I must, when speaking of the nature of these maladies and their complications, have said much about uric and lactic acids, of urea in the blood, of a specific poison, of the necessity of that poison being eliminated from the system, of the peculiar irritative action of urea or some other poison in the blood upon the serous membranes, of an elective affinity in scarlatina for the kidneys and many other topics of the like nature. But I should have felt it my duty, to have impressed upon you at the same time, that these would but have helped us to hypothetical and very obscure explanations of points which it must be confessed an exact and valid pathology is not as yet able to include within its grasp. All that I now lay stress upon, therefore, is a certain observed sequence of phenomena—*Scarlatina*, *Rheumatism*, and *Heart-disease;* a sequence observed sufficiently often, and under such intimate relations of time and place, to warrant us in associating these phenomena in casual connexion, however the true relations of this connexion may be afterwards definitely fixed. I would also, in conclusion, recall to your memory, that whilst we have had recorded experiments on animals, in which the kidneys have been removed, or the ureters tied, &c., and cases related where the secretion of urine has been suppressed from stoppage of the ureters by calculi and new formations, and which cases and experiments have been followed by vomiting, dryness of the tongue and mouth, &c., intense

thirst, altered or husky voice, serous profluvia, great perspiration, convulsions, deep stupor, and death. I am not aware that dropsy, affections of the synovial membranes, of the pleura, or of the pericardium have followed, as in scarlet fever.—*Lancet, Dec.* 1, 1855, *p.* 517.

7.—*Treatment of Ague by Iodide of Potassium.* By E. F. Sankey, Esq., Beckley, Sussex.—[Cases of ague are not uncommon which resist the usual treatment by quinine, arsenic, &c.; it was in such cases that Dr. Williams some three years ago recommended the bromide of potassium; this is a remedy which is not always at hand, and from the following statement it appears that the iodide of potassium will act equally well, for the author has used it in more than a hundred cases, and with a uniformly favourable result.]

In some cases, where the disease has been of long standing, and the patient very much reduced, I have added a grain or two of quinine to each dose of the iodide of potassium; but my general prescription has been for an adult—

℞. Potas. iodid. ʒ iss ; aquæ menth. pip. ℥xij. M. Coch. mag. ij 4tâ quâque horâ sumend.

So that there could be no doubt what was the remedy that cured the disease. In proof of the value of this drug, I will only mention one case out of all that I have thus treated.

Mrs. Smith, aged 50, sent for me early last month, having suffered from tertian ague, off and on, since September. Not being in very good circumstances, she went to the clergyman's wife of the parish in which she resided, who very kindly gave her some quinine, telling her it was no use sending for the medical man, as he *must* give her the same remedy. However, not getting well, she sent for me. After hearing what I have related, and finding that she had a tolerable pulse, her bowels open, and motions healthy, with a clean tongue, I sent her nothing but the above mixture; and she never had a return of the ague after the second dose she took of it.—*Association Med. Journal, March* 15, 1856, *p.* 221.

8.—ON THE NATURE AND TREATMENT OF ACUTE RHEUMATISM.

By Dr. Joseph Bell, Physician to the Glasgow Royal Infirmary.

[By tracing the resemblance between rheumatism and other affections in which the blood is disordered, we may be enabled to apprehend more clearly the relation which rheumatism holds to general disease, and the peculiar character of the deterioration which exists. We may include blood diseases under two heads: 1st. Those produced by a morbific matter taken into the system from without, as typhus and the exanthematæ. 2nd. Those which originate within the body, as scurvy,

purpura, anemia, &c. We know that rheumatism is intimately connected with affections depending on an altered condition of the blood, characterized by a depressed state of the system, and occurring in the ill clothed, and badly fed, after exposure to cold and damp, whereby the materies morbi is produced. There are points of great dissimilarity between rheumatic fever and other fevers. Typhus and exanthematous fevers originate from the absorption of poisons from without, and recovery is chiefly brought about by the physiological powers of the system overcoming the pathological influence of the poison.]

In rheumatism, the morbid poison *originates within the body*, and exercises its pathological influence on the fibrous and serous tissues, and recovery is effected principally by the physiological powers of the system. Thus we easily perceive the sources from which the resemblances and the differences in the phenomena of these allied diseases originate. On the one hand, exanthematous and typhus fevers depend on the presence of a morbid poison *absorbed into the system;* on the other, rheumatic fever arises from a morbid poison *generated within the system.*

This leads us, in the next place, to the comparison of the phenomena of rheumatism with those affections included under the second division of blood diseases, viz., diseases which depend on the deficiency or morbid alteration of some element which forms an essential constituent of the blood—such abnormal changes originating within the body. Modern pathologists have subdivided this class of diseases into two sections:—1st, Diseases produced by a morbific matter originating in an abnormal *chemical action* in the blood itself, taking place during the period of secondary assimilation, and often depending on deficient excretion. 2nd, Diseases arising from a simple deficiency or alteration of some of the constituents of the blood.

It is the favourite theory of the day to ascribe rheumatism to the first, and scurvy, chlorosis, &c., to the second division. Dr. Todd observes, "that the tissues which belong to the gelatinous and albuminous classes are chiefly composed of those proximate elements, from the decomposition of which, in the wear of the system, three great secondary organic compounds—urea, lithic acid, and lactic acid—are produced." In rheumatism, it is alleged that, in consequence of an abnormal chemical change, these products become deranged—lactic acid predominates, and produces the phenomena of the disease—it is the real *materies morbi.* The same author adds, "that the imperfect assimilation and vicissitude of temperature induce an accumulation of fibrine in the blood; hence the increase of lactates in the perspiration and urine." In other words, from the mal-assimilation and excretion of the effete fibrinous tissues, and from exposure to cold, checking perspiration, this fibrine is converted into lactic acid, which attempts to find its exit through the skin. In the language of Dr. Prout, "on these suppositions we may explain the formation of the large quantities

of lactic acid usually present in rheumatic affections." Thus we have the disease placed in direct opposition to gout, in which the lithates prevail—uric acid being considered the *materies morbi* in this affection. When the case is of the hybrid character, denominated rheumatic-gout, then it is affirmed that both lithic and lactic acid abound in the blood. Or, in other words, the uric acid is content to direct its operations against the *small joints*. whilst it leaves the more dignified assault of the *large joints* to its ally, the lactic.

It is amusing to hear some of the small fry of the profession confounding these two supposed conditions of the blood. It is not uncommon to find practitioners treating rheumatism by remedies calculated to decompose lithic acid. These gentlemen plume themselves for acting on scientific principles, whilst the very leviathans which they attempt to follow, affirm that such a substance is never present in rheumatism, unless the complication of gout exists. Indeed, the advocates of the lactic acid origin of rheumatism are very apt to dazzle even the most cautious, by the beautiful formula which they produce.

The chemical symbols, $10\,Pr + SP\frac{1}{5}$ (fibrine), $C_2\ H_4\ N_2\ O_2$ (urea) $C_{10}\ N_4\ H_4\ O_6$ (uric acid), $HO, C_6\ H_5\ O_5$ (lactic acid), and those of a few other organic compounds, are placed on the black board; decompositions and new combinations are so beautifully and scientifically sketched, we feel almost ashamed to harbour a doubt that such changes actually take place in blood. If we have courage to withstand the teachings of this romantic pathology, we must be content to be viewed as insensible to the claims of true science. If we strip away the gaudy tinsel trappings with which fancy and imagination have adorned this subject, we will find ourselves in great darkness regarding, not only the nature, but the very existence of any such elabo ate transformations as we find drawn up by disciples of this kind of pathology. They resemble very much the painters of the old French school—their pictures are representations of ideal and not of natural existences.

This is too grave a subject to be treated with levity or ridicule, because the fashionable *eliminative* treatment of rheumatism is founded on this very theory, one which obviously embraces three considerations.

1st. The alleged primary cause, namely, deficient excretions.

2nd. The effect of which is to set up an abnormal chemical change during secondary assimilation, and thereby, in the third place, lead to an accumulation of effete tissues, and consequent generation of lactic acid, the supposed *materies morbi*.

1st. *Deficient Excretion.*—The kidneys and the skin are considered as the two eliminating organs principally at fault in rheumatism, being viewed as the two depurating organs of the blood from its effete tissues. It is entirely overlooked that the excretions formed by these organs are taken from *arterial* blood. In fact, the skin and kidneys are thus

made *to purify* that which is already *pure*. Doubtless, some physiologists of great eminence, perceiving this difficulty, have attempted to convince us that the principal part of the urinary secretion is formed from the capillary veins which surround the tubuli uriniferi—that we have in the kidneys a venous system analogous to the portal. This special pleading should not delude us, when we have before us this important difference, that the veins of the kidneys receive their blood from the capillaries, *only of the renal artery*, whilst the portal veins receive the contents of the various tributaries from the chylopoietic viscera. It has not been shown that the blood in the emulgent veins is *purer* than arterial blood; on the contrary, the contents of these vessels have all the characters of venous blood—deficient in all nutrient properties, and returned to the right side of the heart to be transmitted to the lungs for *purification*.

The same remarks will apply to the skin. The excretions of this extensive and complex organ are formed from arterial blood, which afterwards passes into the venous capillaries, and is returned to the heart as contaminated blood.

That the skin and kidneys exercise most important influences on the conditions of the blood in relation to its nutritive qualities, cannot be doubted. It is not my object at present to enter on the discussion of the nature of these influences, but to expose the fallacies which abound in the chemico-pathological fashions of the day, especially in reference to the disease under consideration. If we would reflect on that which we really do know of the functions of the kidneys and skin, we would not so readily adopt such evident absurdities. We are almost entirely ignorant of the physiology of the excretions. Thanks to Bernard, we are beginning to gain some knowledge of the hepatic functions; but if we sit down and carefully analyse the various theories, we will find the whole subject involved in a perfect chaos—speculative notions obscuring the few facts which have been demonstrated.

From the foregoing observations we are entitled to conclude, that we have no evidence that any morbid poison or agency is introduced into the system in consequence of deficient excretion. If, therefore, the alleged cause cannot be demonstrated, it follows that the supposed effects must be less capable of proof. It may be said, however, that the deficient excretion is only by some considered as a probable explanation; and we may have the abnormal conditions of the blood present, though erroneous opinions exist as to their production.

3rd. Let us, in the third place, examine the doctrine of the origin of rheumatism from the non-conversion or elimination of the effete tissues.

These originate in all the structures of the frame; their greater portion, if not all, are taken up by the absorbents, and pass through the extensive system of lymphatics, and become converted into lymph, a fluid nearly identical in composition with chyle, and is poured along

with it into the mass of venous blood previous to its entrance into the right side of the heart, to be sent through the lungs, and returned as pure arterial blood to the left auricle. A portion of effete matters is said to be taken by the veins. If any change be effected on them in these vessels it is unknown to us, but in the lungs a transformation undoubtedly takes place The lymphatic glands and the lungs appear to be the only converting or assimilating organs, to the agency of which the effete matters are subjected. It is worthy of remark, that the lungs do not act on these broken-down tissues in their effete condition, but when they have become converted into lymph; just in the same way as it is upon the chyle that the functions of respiration act, not on the unconverted food. The lymphatic system stands in the same relation to the reduction and digestion of the effete tissues, and their transformation into lymph, as the stomach and its accessory organs hold to the decomposition of the food and its conversion into chyle. Both chyle and lymph are the products of a most complex and elaborate series of changes, the nature of which chemistry has not discovered, and of which we can only judge by the results. It has been argued that the blood is a vital fluid, possessing in itself the power of effecting chemico-vital changes, and that its own constituents are elaborated within its vessels to the highest degree of animalization. These views are very plausible, and it may be admitted that their correctness is within the limits of possibility; but, on the other hand, we know that the blood, when it enters the left auricle, is endowed with its nutritive properties so far as *force* is concerned. No doubt a further *force* is required to apply this arterial fluid to the renovation of the tissues. However, the action of this *force* does not tend to give the blood a higher degree of vitality, but the very reverse, reducing its nutritive powers and changing it into venous blood.

We therefore perceive that we have no proof of any such abnormal transformations taking place in the assimilation of the effete tissues, in consequence of deficient excretion, as is affirmed to occur in rheumatic fever.

Let us next compare the state of the blood in rheumatism with the condition that exists in diseases belonging to the second division; viz., those depending either on deficiency or altered condition of some of the essential constituents of the fluid.

The examinations which have been made of the blood drawn from rheumatic patients clearly establish two things:—First, That the fibrine is increased. Secondly, That the red globules are diminished. These two facts intimately connect the disease with anæmia, and other diseases of a low character, showing most clearly that rheumatic fever depends on a derangement in the nutritive relations which exist between the blood and the fibrous and muscular tissues. Simon, following Zimmerman, regards the fibrine of the blood as originating from the effete nitrogenous tissues, and not, as is usually considered,

the highest product of assimilation. In this way he accounts for the presence of the high amount of fibrine in the blood, and the supposed excess of lactic acid. I say supposed, as its presence in the blood has not been satisfactorily demonstrated. Though these views are highly plausible, yet we can more readily account for the state of hyperinosis on other grounds. Whenever the nutrition of the fibrous or muscular tissues becomes deranged, the quantity of fibrine must be altered, whether that derangement arises from local or general causes—whether the disease originates in the tissues themselves, or in the blood.

If from mal-assimilation an imperfect fibrine be elaborated, the nutrition of the tissues will become deranged; if, on the other hand, the structures become unable to convert the fibrinous constituent of the blood into their own structures, we shall have the constitution of the blood altered; hyperinosis, in both cases, will be the result. In the present state of medical science, we are not in a position to give this matter a satisfactory explanation. In the meantime we should rest content with the knowledge, that in rheumatism we have too much fibrine in the blood, and too few red globules; these two circumstances connecting the disease with anæmia, phthisis, &c.

Besides Dr. Todd, Dr. Fuller, and Mr. Simon, already quoted, other able and accurate observers have pointed out this anæmic character of the disease. Dr. O'Ferrall has published some excellent remarks on this subject in the Dublin Press and Medical Times, Sept. 10, 1849. From repeated observation, "he has been led to the conclusion that the natural tendency of the disease, in its advanced stages, is to produce a diminution of the hæmatosin of the blood." He has frequently detected anæmic murmurs over the heart, and the cervical vessels disappearing under the use of chalybeates, as in ordinary chlorosis. In an able paper on Tropical Rheumatism, read at a meeting of the Harveian Society, Jan. 16, 1851, by Dr. James Bird, we find similar observations on the asthenic form of the malady:—"In all," he observes, "the sudden or continued influence of damp, cold, malarious air, by producing a powerful impression on the skin and nervous system, might be set down as the first link in the chain of changes connected with the generation of *materies morbi* in the blood. The equilibrium of healthy nutrition was disturbed, the tissues ceased to appropriate true nutritive materials, and the assimilating functions of the stomach and collatitious viscera were deranged."

Numerous quotations of the same character might be made, all confirming the doctrine of the asthenic nature of rheumatism, and all pointing out the existence of altered nutritive relations between the blood and the muscular and fibrous tissues. The origin of this disordered nutrition is unknown. Undoubtedly there exists something in the disease beyond the mere hyperinosis of the blood, and diminution of the hæmatosin, that induces a morbid tendency to deposition of fibrine. This cause, so far as we know, seems to be generated

within the blood. It is quite possible, however, that it may have an *external origin.* Be this as it may, it must appear obvious that this disorder of the nutritive relations is also the first evident link in the chain of morbid processes observed in typhus and exanthematæ. In these affections the forces of nutrition are disturbed by the influence of morbid poisons absorbed from without, and affecting such modifications of function, that the patient not unfrequently sinks under the disease, without presenting any tangible trace of structural change.

Again, in the second division of blood diseases, we have nutrition modified in consequence of derangement originating within the system, and ultimately involving all the functions, and often producing structural changes. In rheumatism, we have seen that the same disordered condition of the nutritive forces exist, the *materies morbi* of which, in all probability, originate within the system, but producing high constitutional excitement in all cases, whatever may be the extent of the local suffering, which is merely an associated condition of the general disturbance. Rheumatic fever, therefore, partakes of the character of both classes of blood diseases; its general phenomena connecting it with those of the first, and its origin from causes generated within the system, as well as the condition of the blood itself, associating it with those of the second division.

Abnormal alterations or modifications of nutrition are the *fundamental bases* from which all these affections spring, the difference in their respective causes giving rise to the diversities which their phenomena exhibit.

The following objections may be urged against the asthenic nature of rheumatism :—

1. The state of the joints.
2. The existence of hyperinosis points to a sthenic condition of the system.
3. The state of the pulse.
4. The high-coloured and scanty urine.
6. The beneficial effects of antiphlogistic treatment.
7. The frequency of cardiac disease.

1st. *The State of the Joints.*—This pathological condition cannot be viewed as a genuine inflammation. The rapidity with which the swelling and redness subside, and fly about from one joint to another, without leaving any structural change, settles this question.

2d. *The Increase of Fibrine.*—This we find occurs with as much regularity in anæmia, phthisis, and other diseases connected with depressed conditions, as it does in the most acute inflammations. We also know that the fibrine, instead of being diminished by bleeding, is actually increased ; and, again, we must bear in mind that there is a deficiency of the red globules in rheumatism.

3d. The pulse in rheumatic fever is doubtless full and bounding, but this does not indicate augmented vital power, but the reverse. The pulse is always easily compressible ; in fact it is not the pulse character-

istic either of congestion or inflammation, but the one distinctive of "excitement without power."

4th. Though certainly the urine is high-coloured and scanty, and deposits lithates largely, yet it does not follow from this that the disease is one of an inflammatory character. In phthisis, and other affections of debility, we have the same circumstances occurring. The excessive perspiration which generally takes place in rheumatism will affect the quantity of the urine, and the hyperinosed state of the blood will account for the increase of deposits. Becquerel mentions a curious fact regarding the urine of rheumatic patients; viz., that immediately after a large bleeding, the urine assumes all the characters of the secretion in anæmia.

5th. *The Occurrence of the Pericarditis and Endocarditis.*—Here it may be triumphantly said, you must admit that we have a true and genuine ——itis. I have already pointed out, that at first we may have a mere congested condition of the fibro-serous membranes of the heart,. ending in effusion, just as we see taking place about the joints; but that the anatomical relations of the coverings of the heart are such that these conditions cannot exist for any length of time without producing organic disease.

Mr. Simon justly remarks, that "on the supposition that these vegetations are inflammatory effusions from the membrane, I should be quite unable to explain why they should almost entirely confine themselves, as they do, to the valvular apparatus, and why their predilection for the left side should be so great, that the right is very rarely affected, perhaps never, except where the left has first suffered, and where the disease has been of such extreme intensity, that even its weaker affinity for the right side has been able to manifest itself. The opposite doctrine is the more tenable one. I believe that the origin of these vegetations is directly humoral—that they arise as fibrinous precipitations from an overcharged solution, the valves encrusting themselves with fibrine.....The disease in which these deposits are so frequent is one of intense over-fibrination of the blood, and one in which almost certainly there are other conditions, besides quantity, making the fibrine easy of precipitation.....Many people bleed locally, or even generally, when they hear an endocardiac murmur arising in the course of rheumatic fever. In their eyes the new disease is endocarditis, and everything ending in *itis* is thought, in at least a majority of instances, to be benefited by bleeding. Therefore, gentlemen, do not be in a hurry to call it endocarditis; and as for bleeding, all that I would venture to say (for, of course, the treatment of this physician's disease does not fall within my province), is to assure you of the pathological fact, that you may bleed a patient to death, without altering, except probably to increase, the proportion of fibrine in the blood."

It is almost unnecessary to say, that I fully concur in the above views held by this enlightened physiologist. Even when endocarditis

does take place, it by no means follows that rheumatic fever is of a sthenic character. The endocardial complication may result from the precipitated fibrine.

6th. *The alleged beneficial effects of Antiphlogistic Treatment.*—By a careful examination of the cases so treated, it will be found that this active treatment is by no means universally successful, the attack often lasting beyond one month. M. Bouillaud's thirty-six cases had an average duration of four weeks. Dr. E. Monneret has made some interesting observations on this point. He bled in nineteen cases with freedom, and the result he states to be, that the patients thus treated remained in the hospital as long as those treated by other remedies. He concludes by stating, that "when the symptoms are not relieved by the blood-letting within the first four or five days of the invasion of the disease, it is in vain persisting in the abstraction of blood. The practice then is only injurious. Bellows murmurs are set up in the heart and great vessels, the surface becomes drenched in sweat, the sleep is disturbed, the pulse is rapid, and the pains, far from diminishing, flit about from one joint to another, or remain obstinately fixed in those that were first attacked." In other words, depletion only reduces the patient, and renders his recovery more difficult. I have carefully read over numerous successful (?) cases treated by blood-letting, and I find that when the attack was of a short duration. the patients were of robust habits, a class of persons in whom the disease is never very protracted. I venture to affirm, that these supposed recoveries held but a trifling relation to the mode of treatment, the strength of constitution enabling the patients to withstand the debilitating influences of the remedy and the disease.

We therefore find that these objections do not in the least invalidate the conclusions which we have deduced regarding the asthenic character of rheumatic fever, and its intimate alliance with those diseases which depend on a depressed condition of the blood.

Treatment.—This may be considered under five heads: 1st, Antiphlogistic; 2d, Specific; 3d, Narcotic; 4th, Eliminative; 5th, Tonic or alterative.

In coming to a conclusion regarding the effects of remedies in shortening the duration of any disease, we have to ascertain, as the basis of our investigation, the natural duration of the malady. I have already pointed out that rheumatic fever has no fixed duration, but that it varies within certain limits—that is, from one to three weeks. The best observations which I have read on this subject will be found in an article by M. Dewalsche, on the expectant treatment of acute articular rheumatism in the Military hospital of Antwerp. He relates several cases of the disease, with the object of proving that this plan of treatment, introduced by M. Gouzée, the physician-in-chief to this establishment, is much more satisfactory in its results than the treatment by emetics, bleeding, opium, iodide of potassium, alkaline salts, &c. The plan of treatment adopted consisted of equable tempe-

rature, pure air, abundance of diluents, tepid baths, fomentations, good diet, bitter tonics, especially quinine.

The results of this treatment are—first, that the malady tends to terminate naturally in the *first or second week;* secondly, that the termination is brought about as safely, and as soon, as if active treatment had been employed; thirdly, that the *bruit de souffle* of the heart, frequently heard in the course of the malady, disappears spontaneously, in the majority of cases, as the recovery progresses; fourthly, that these *bruits* are not always and certainly the signs of endocarditis.

[Out of a number of patients in the Glasgow Infirmary, we may mention one where the wrists and hips were affected, pulse 92, loud bellows, systolic murmur with the heart's action. He was ordered a dose of salts and senna, and in two or three days he was discharged. Another case very similar, where, after the pain and murmur had gone, was ordered two grains of metallic iron three times a day. In four other patients the disease had a duration of seven, ten, eleven, and fourteen days respectively, without any treatment having been adopted. From numerous observations, we may say that rheumatism often runs its course within a period of one or two weeks without any medicine; and, therefore, Dr. Bell thinks that blood-letting and *antiphlogistic treatment* does not shorten the duration of rheumatism, but, on the contrary, nearly doubles the natural period. With respect to *specific treatment* by colchicum, iodide of potassium, &c., Dr. Bell says we have not the slightest evidence that they exert any influence in shortening the duration of the disease. Colchicum may be useful when the urine contains urates in stout adult subjects, but it is very injurious in those of a weak constitution, especially the young and old. *Narcotics* have been very extensively used by some; they are sometimes highly advantageous in mitigating the intensity of the pain. The laudanum injection is the best form of administration, because digestion and secretion are least interfered with. The *eliminative* plan of treatment is the most fashionable of the present day.]

Those who advocate this practice, found it on the speculative opinions which have been reviewed at some length in this paper—namely, that the disease results from certain abnormal chemical changes taking place during the processes of assimilation. Remedies have therefore been selected, the chemical constitution of which render them capable of entering into combination with the effete matters, and of reducing them into a proper condition for elimination through the excreting organs, especially the kidneys and skin. The most popular of these remedies are lemon juice and the alkaline salts. The speculative theories of the *modus operandi* of these medicines are very plausible and captivating;—when supported by the vaunted rapidity of the cure of the disease, they become almost irresistible. The able originators of these doctrines, and the mobile part of the profession

which follow in their train, applaud themselves as the only scientific practitioners ; all others they deem behind the age—mere ignorant empirics. From the remarks which I have ventured to make on the fanciful notions of these chemico-pathologists, the reader will perceive that I shall enjoy the unenviable position of being considered among the superannuated individuals. I have the presumption to think, however, that I can prove satisfactorily—1st, that eliminatives do not shorten the duration of the disease ; 2d, that they often prove injurious ; and, 3d, that the practice is unscientific.

1st. I contend that the eliminative treatment has neither proved more uniformly efficacious, nor more speedy than other modes.

(a) Lemon Juice.—Dr. O. Rees, who introduced this remedy, supposes that, by the excess of oxygen it contains, it promotes the conversion of *lithic (?)* acid into urea and carbonic acid, and consequently favours its excretion from the system, while the alkaline citrate which it contains assists to promote a cure. A careful examination of the cases related by Dr. Rees shows, that on the average his cases were *twenty-five days* under treatment, and were *forty days* under the disease. I have examined the result of the treatment in twenty-seven cases reported by other advocates of this remedy, and I find that *twenty-eight days* is the average duration of the treatment, and many of the patients had laboured under the disease at least a week previous to admission. Need I point out the inferiority of the treatment, thus proved by the above results in the hands of its advocates, in comparison to the expectant method ? Such is the rage for novelty, that though these facts were patent to all, yet the great mass of the profession commenced to dose their patients with the remedy ; and though, at the present moment, it has been discarded by intelligent and leading physicians as at least uncertain in its action, yet many still continue to exhibit it, and consider their practice as the *ne plus ultra* of medical science.

(b.) Alkaline Salts.—Dr. Fuller has used these largely, and states that it is impossible to speak too highly of their efficacy. On a careful examination of the six cases reported in his excellent work on Rheumatism, it will be found that these patients were on an average *twenty-one days* under the disease, and sixteen days under treatment.

Dr. Garrod has recently recommended large and frequent doses of bicarbonate of potash. He states that the result of his experience has been, that, in twenty males, the duration of the disease under treatment was between six and seven days, and the total duration between eleven and twelve days ; and in thirty-one females, the disease under treatment averaged from seven to eight days, and the total duration between fifteen and sixteen days. He details three cases : The first, a girl aged ten years ; the patient was under treatment five days, and under the disease eight. The second, a young man aged twenty years, under treatment eight days ; total duration fifteen days. The third, a young woman aged eighteen years, total

duration thirteen days; under treatment only nine days; this was her fifth attack, the former ones always lasted for a month or five weeks. On contrasting the results of the treatment in these cases with those placed under the expectant plan, we do not perceive any advantage on the side of the alkaline.

Tonic Treatment.—We have seen that rheumatic fever is intimately associated with those diseases depending on an altered condition of the blood; and we have also seen, that so far as chemistry can demonstrate, the altered condition peculiar to rheumatism consists in an increase of the fibrine, and a deficiency of the hæmatosin. Hæmatics are, therefore, the most appropriate remedies. By their influence we may reasonably expect to remove the faulty state of the blood.

I need scarcely remark that hæmatics are divided into two classes, one class containing substances natural to the blood;—they form a part of its constitution. They may, therefore, remain in it, and never be excreted. These remedies are useful when the blood is deficient in one or more of its constituents. They are, therefore, called restoratives. Now, in rheumatism we know that there is a diminution of the red globules. We also know that iron is the proper hæmatic to *restore* this deficiency.

"The other class," as Dr. Headland remarks, "are not natural constituents of the vital fluid, and cannot remain there. . . . They are of use when disease depends on the presence and working in the blood of some morbid material or agency, which material or action they tend to counteract or destroy." Now, in rheumatism we find the blood loaded with fibrine. Experience has taught us that the best vital antidotes which we have to remove this state of hyperinosis, are tonics and alkalies. These are vital catalytics, breaking up the fibrine, and after performing this function, often pass out of the body unchanged. Again, it seems highly probable, from the researches of Dr. Bœcker, that many of our tonics act in preventing those destructive changes which take place in the blood. He has shown that the effete products of the system diminish under the use of wine, sugar, and coffee. Simon properly remarks, "that our hopes of dealing successfully with humoral disorders depend altogether on the event of such investigations—investigations which never can be profitable, unless, like Dr. Bœcker's, they include an account of every individual excretion, and base themselves on a profound study of the natural metamorphoses of the blood."

The recent researches of M. Liebig have shown that there is a strong resemblance between the taurine of the bile and quinine. Dr. Headland suggests that quinine, and other bitter tonics, may act beneficially in taking the place of taurine. Now we know that the biliary secretion either is deficient or deranged, not only in rheumatism, but also in fevers of all types. It is a matter of general observation, that quinine is often most beneficial in these affections. Dr.

Headland has made some important remarks on this subject. I beg to refer my readers to the work itself. I would observe that I have often found tonics the best remedies for improving impaired or depraved secretions. These states frequently depend on vitiated conditions of the blood, resulting from improper primary assimilation. If we improve the digestive powers, we improve the blood, and, consequently, supply the most necessary of all conditions for healthy secretions.

We often err very much in ascribing the disease of the blood to the impaired secretion or excretion, whilst, in fact, such impairment arises from the state of the blood—is the effect, not the cause. Often are the liver and kidneys most unjustly blamed, and most unmercifully treated, when they are not only perfectly innocent, but actually labouring as hard as possible to form their accustomed secretions from blood altered in its constitution.

In rheumatism we have an abnormal quantity of fibrine in the blood, and we need not be astonished to find the urine altered considerably in its constituents, especially those containing nitrogen. I need not digress on this subject any further, its importance to practical medicine being most obvious.

The benefit which followed the use of quinine, iron, wine, and other tonics, in the rheumatic complication of the fever of 1843, led me to reflect on the treatment of rheumatism by bark, as recommended by Dr. Haggenth and others. (The average duration of the causes so treated seems to have been about two weeks.) These circumstances, along with the asthenic condition of the system which exists in rheumatism, and the resemblance which its phenomena hold to those of other fevers and blood diseases, induce me to treat the disease by tonics and alteratives, selecting the remedies from those classes that seem most suitable to the peculiarities of each case. It is just the same in rheumatic as in other fevers, that whilst the general principles of treatment are the same, the details must vary in each case. As our object in fever is to guide the patient safely through the attack, and preserve his strength as much as possible, so in rheumatism our object should be similar, not to flatter ourselves that we shall be able to cut short the attack, but to endeavour to prevent organic lesions taking place, and support the patient's strength, in order to avoid the production of that morbid tendency to a return of the disease—usually designated by the term diathesis—the proper definition of which is *ignorance.*

I have no nostrum to propose—I have no favourite tonic to recommend—I am perfectly eclectic, being guided by the specialities of the case. I generally order some preparation of iron, combined with moderate quantities of liquor potassæ. When the liver is much deranged, I give a dose of calomel and rhubarb. When the urinary secretion is scanty, and its specific gravity not much increased, I prescribe colchicum. I frequently order quinine, either alone or combined

with iron. Quassia suits remarkably well, and it has cheapness as a recommendation ; when combined with the alkali, it quickly improves the digestive organs. Wine I deem the best and most efficacious tonic in weakly habits, or in those exposed to much privation. I never hesitate to give it freely to such patients, even when the joints are acutely affected. Fomentation is the only local application which I employ. An opiate at bedtime is strongly demanded ; I generally order it in the form of laudanum enema.

The results of this simple plan of treatment have been most satisfactory. 1st. In no case has the patient been under treatment beyond a fortnight. In the majority the pains have been mitigated, if not subdued, in a much shorter period. 2nd. The period of convalescence is much shortened ; the patients are much sooner able to resume their occupation, and seldom present the anæmic exhausted appearance exhibited by those who are submitted to more active plans of treatment. 3rd. The liability to cardiac disease is much less. In none of the cases admitted to the Infirmary did this complication occur when the patient had been put under the treatment on admission. Indeed, I am convinced that cardiac disease will be of very rare occurrence, if the tonic or hematic plan of treatment be adopted at an early period of the attack.—*Glasgow Med. Journal, Jan.* 1856, *p.* 399.

9.—DIAGNOSIS OF CANCER AND CANCROID GROWTHS.

By Dr. Morris H. Collis, Surgeon to the Meath Hospital.

Epithelioma commences on the skin as a dry and scabby wart, which falls off from time to time, and exposes on each occasion an increasingly wide surface of ulceration. At the junction of skin and mucous membrane it begins as a chap or fissure with indurated edges, and has a similar tendency to scab and ulcerate. When it originates on a mucous surface, it is either as a flat condylomatous wart, or as a deposit in the mucous follicles. Thus it is always as a local hypertrophy of the investing epithelium that it commences ; and from first to last it frequently retains this strictly local character. Many of these growths upon the skin are nothing more than hard horny masses of dry epithelial cells, which occasionally fall off, and are slowly replaced. These may be either prominent or flat ; we have frequent examples of them along the edge of the lip upon that part which is covered with coloured skin, external to the line of moist membrane ; these are very harmless, and may last for many years unaltered in extent or depth, until accidental violence or inflammatory action excite them to spread. However in the majority of epithelial growths, ulceration of the integument and deposit of epithelial cells in its substance takes place sooner or later. The skin splits into papillæ as in a wart, and the ever increasing deposit of cells upon the surfaces of these papillæ separates them more deeply and more widely apart. As the cells are

wholly extravascular, and dependent on percolation for what fluid they draw from the economy, a process of disintegration is continually going on in them, and the surface of parts not subject to evaporation is soaked in the putrid remains of cells. How far this aids in the spread of the disease by exciting inflammatory action and ulceration of the sound structures is hard to say. On mucous membranes this tendency to ulcerate is very marked; cauliflower growths from the uterus, for example, although prominent on the surface, and consisting of hypertrophies of the epithelial cells, have their seat on ulcerations which may destroy large portions of the organ. The ulcers, when exposed, present jagged irregular margins and surfaces; enlarged papillæ are visible during the early period of the disease when the surface is wiped free from discharge; at the edges they may be detected at any period. The neighbouring glands are affected irregularly; sometimes not at all; sometimes at an early stage. Upon the whole, the impression on my mind is, that the tendency to infect neighbouring glands is greatest when the disease has its seat on the mucous membrane; and least when it is on skin; but no positive rule can be laid down at present as to the local infection. General infection must be extremely rare, for those who oppose the classification into cancer and cancroid can bring very few satisfactory cases of general poisoning from genuine epithelioma. The disease often kills by local destruction and general waste, but without anything which can be called special or peculiar cachexia. When removed, even completely, it will sometimes return in an aggravated form and with rapidity; but this is quite exceptional; in the majority of cases in which the disease is removed completely, it either does not return, or does so only after a very long interval. All these facts show that there is much less tendency to general poisoning than in cancer, and justify us in classing it apart, especially as it is found to possess a different anatomical structure.

Another class of cancroid tumour, to which the general name of fibro-plastic is rather incorrectly given, includes several tumours of rare occurrence, and with slightly diversified peculiarities. The fibro-plastic shell is not the special element of any tumour of a cancroid nature, but the elements of these fibro-plastic growths resemble it more than any other cell. The fibro-plastic cell is found in all lymph which is undergoing the process of organization, and is consequently often found in tumours of any kind. The class of growths to which I now allude are called by Mr. Paget fibro-nucleated, recurrent fibroid, &c. The microscopic elements of which they are composed are small and very pale, they vary in diameter from the 1.1500 to 1.2200 of an inch. They contain a small nucleus and have a tendency to become elongated into imperfect fibres, arranged in a radiating manner and little organized. There is no juice obtained from a section of these tumours; and although they bleed freely when cut, it would seem to be rather from some want of power in their arteries to contract than

from the number or size of the vessels contained in them. If squeezed or torn up they break readily into little acini, which are individually remarkably tough and resistant. The minute fibro-cells appear to radiate from the point in each acinus by which it is attached to the rest. The tumour which is situated under the skin, and I believe always unconnected with it, is firm, moderately elastic, irregularly lobulated, moveable among the tissues and solitary; it does not affec the skin nor neighbouring glands, except by direct contact through the lymphatics, nor does it produce general cachexia independent of waste, as cancers do. Its strongest and most unaccountable peculiarity is its frequent and rapid recurrence after the most complete ablation, after even amputation at a considerable distance from the original seat. It invariably returns in from three to six months in the cicatrix, and requires repeated removal, which should therefore always be complete, but very sparing of the healthy tissues, and repeated early on the re-appearance of the growth.

There are many other sub-varieties of both cancer and cancroid, but as we have not met with specimens of them during the present session, we must defer the consideration of them for the present. The main features of both classes of morbid growth, I have endeavoured to lay before you as fully as was consistent with brevity. I will now conclude these lectures with some remarks on the diagnosis of tumours, with a view to your guidance in the important points of operation and prognosis.

When a patient is presented to you with a tumour, you must note, first, certain circumstances relating to the individual; secondly, such properties of the tumour as manifest themselves to your senses; and thirdly, the effects of the growth upon the patient. Then comparing these with each other, and with the anatomical structure and known characters of the various growths, you will eliminate such as are incompatible with your examination, and thus arrive at what the tumour is by ascertaining what it is not. First, then, you will note such circumstances about the individual as the age, sex, history, &c. As to age—infancy and childhood are liable to acute cancer, enchondroma, and strumous swellings. Adult life is the period for all hypertrophies, such as fibrous and fatty tumours, for the cancroids and for the acute cancers in organs which are late in arriving at maturity, as the organs of generation. As the patient advances in age, slow-growing epethelioma and scirrhus become predominant. Cancer and cancroid form the vast majority of the tumours that are met with, if age be excluded from our consideration.

Sex exercises still greater influence on our diagnosis. When we glance at statistical tables, we find that cancers of the female breast and of the uterus surpass in numbers all other tumours in all situations put together. Of these, scirrhus of the breast and uterus form the bulk. We have a small proportion of acute cancer of the uterus, and smaller still of the breast. Women are also subject to innocent

chronic mammary tumours of the breast; both sexes to epithelioma of the rectum and genitals; and men more than women to epithelioma of the lips and face generally. As regards temperament and appearance, thin, sallow, unhealthy-looking people are supposed to be more subject to cancer; but the lardaceous variety shows that the fattest people are not exempt from it. A melancholy, brooding disposition is often connected with cancer, as it is with any disease of perverted or deficient nutrition; but, on the other hand, to whatever amount cheerfulness of temper may be an item in favour of recovery after operation, it is little protection against the primary development of disease. There are sufficiently numerous and remarkable cases on record of both cancer and cancroid occurring in successive generations, to prevent our denying the influence of their hereditary transmission; but, at the same time, these are few in comparison to the total number of cases. I have seen curious and marked instances of the repetition of encysted tumours, which have just as much weight for hereditary influence as the facts adduced in its favour in the case of cancer. Accidental violence is in much the same category; it may give an impetus to a latent tendency, and a locus to the deposit, but no more. It seems to me very doubtful whether the statement is correct, that the adenoid or chronic mammary tumour has its origin in effusions of blood.

We now come, secondly, to the properties of the tumours themselves. On this point I have said much that need not be repeated. The situation, size, weight, shape, and mobility or fixedness of the tumour; its duration and rate of progress; the colour and alteration of the integuments; the appearance of the ulcer, if one exist, and the nature of the discharge; the solitary or multiple nature of the tumour; glandular irritation or infection in the neighbourhood or at a distance—must all be carefully examined into and weighed. Acute cancer is rapid, and attains often a very large size, is heavier than any non-cancerous growth, is seldom multiple, implicates in time all neighbouring structures, though it seldom poisons the glands when primary; and it almost always returns rapidly and extensively in the glandular and visceral organs after removal. Adenoid tumours are much smaller, very chronic, very moveable, perfectly harmless, and never affect the glands or the system, though they are sometimes multiple in the same breast or in both breasts. Scirrhus is small, chronic, of stony hardness, drawing in the skin, and all the fibrous tissues, into itself, and finally the muscles, and every other structure. Cancer in any shape does not ulcerate early. This distinguishes it from epithelioma, as the preceding symptoms do from adenoid, fatty, or fibrous tumours, and from the recurrent fibro-nucleated. Fatty tumours are easily known by their lightness, and largely lobulated surface, and scalloped edge. The most puzzling of all its physical characters is the cystic tumour of the breast, when combined with cancer, as it frequently is. Except in the plainest cases, it is impossible to diagnose by the hand

and eye. The presence of cysts may be readily detected in many instances in which the cancerous deposit is small in amount, and veiled by the fluid contents of the cysts; and, on the other hand, the deposit of cancer may conceal the presence of cysts. Alterations of the integument, and the general symptoms, must guide us to the discovery of cancer; and, in the other case, if we are sure of the presence of cancer, we need not be so careful to diagnose the co-existence of cysts. I have seen simple cysts, the result of varices, mistaken for small fatty growths, and I really do not know any certain means of diagnosing them; but, fortunately, a mistake would be of no practical importance, as both tumours are harmless. To overlook cancer, in combination with cysts, would be more serious.

The last points to be considered in aid of our diagnosis are the effects of the growth upon the individual: these are pain, cachexia, wasting. Pain we have already spoken of. Cachexia is of value in the diagnosis of tumours, if it appear before they ulcerate, as it generally does in cancers. In other diseases, inclusive of the cancroid, it does not appear until the patient is worn and wasted by discharge and loss of blood, by deglutition or absorption of foul matters, and inhalation of noxious gases, the results of ulceration and decomposition. Wasting may be included in these remarks on cachexia.

With regard to operation. Encephaloid is more often removed with temporary, or even permanent success, than scirrhus, but success is very rare, and when it returns it is with extreme violence. In the young, you will give every chance by removing early and freely. A respite of years, if not a recovery, is in a few cases secured; and where a premature and horrible death is otherwise certain, the duty of endeavouring to secure this chance is plain. In the old, or even in the adult, you have less hopes of success; still, operation is justifiable and proper, when the powers of life are not depressed, and the tumour easy of complete removal, without such loss of integument as will delay recovery from the operation. Scirrhus, though often removed, is not often, if ever permanantly cured. When it is adherent to the deeper parts, when the lymphatic glands are the seat of deposit, when the glands of the skin are the seat of small disseminated beads of cancer, or when its interstices are infiltrated, as in the lardaceous form, it is worse than useless to operate: relapse is certain and rapid. When the growth is very chronic and very small, in a weak atrophied individual, the chances are, that an operation will convert into an active agent of destruction a comparatively harmless tumour, which, if let alone, would have lasted for years, with little local alteration, and little injury to the patient's life. In these very chronic cases, removal does no good, and may do much harm. In epithelioma, the general rule is to operate if you can remove all; relapse often occurs locally, but does not prevent a second or third removal. When the disease originates in mucous membrane, as in cancroid of the genitals or rectum, the tongue, or gums, you have little chance of permanent

cure. In many of these cases, the addition of actual cautery to as complete removal as possible is a valuable aid. The cicatrix of a burn is not a favourable nidus for epithelial growths, and by its great contractility, it seems to check the hypertrophic deposit in its neighbourhood. With regard to recurrent tumours, I have already said they must be removed as often as they appear. and with as little loss of healthy structure as is consistent with their complete enucleation.—*Dub. Hospital Gazette, Oct.* 15, 1855, *p.* 276.

10.—*On the Diagnosis of Cancer.* By Dr. Alexander Henry.—The question as to the utility of the microscope resolves itself into two points: first, as to the absolute value of the instrument in diagnosing a malignant tumour : secondly, as to the existence of a specific cancer-cell.

On the first point, we have several conflicting statements: first, that in some tumours, of an undoubtedly cancerous nature, cells are absent : secondly, that they have been found in tumours of a non-malignant character : thirdly, that the absence of cells from a hard tumour shews it to be non-malignant. On these statements I can only briefly remark ; first, that in undoubtedly cancerous tumours, as shewn by their softness, it is possible that the cells may have undergone a process of disintegration, though I doubt whether cells could not be found in some portion of such tumours ; secondly, that cystic sarcoma, to which I suppose reference is made when it is said that cells are found in non-malignant tumours, has a great tendency to degenerate ; thirdly, that we must remember that apparently simple tumours are known sometimes to assume a malignant type, and therefore I scarcely see how it can be predicated of any one of them that it would not act in this way. After all, as I shall presently take occasion to point out more fully, the question of malignity is a relative one ; and, as cells are most liable to assume that state of action to which I would apply the term malignant, I think that the existence of cells in a tumour affords grounds for regarding it as either malignant, or likely to become so ; while the negative evidence is only valuable so far as it shews the most obvious conditions of malignity not to have yet been assumed.

As to the specific nature of the cancer-cell, I can only state here, that a consideration of the opinions of the microscopists to whom I have referred, together with the few observations I have been enabled to make personally, lead me to doubt whether there is a diagnostic cell. I should be guided more by finding cells in situations where they ought not to be ; and if there is any cell more diagnostic of cancer than another, it is the large "parent-cell," with from three to five smaller ones within it. But the absence of such cells does not shew that the disease is not cancer.—*Association Journal, Dec.* 15, 1855, *p.* 415.

11.—ON SPROUTING CAULIFLOWER CANCER.

By Samuel Solly, Esq., F.R.S., Surgeon to St. Thomas's Hospital.

This form of cancer has been called by some writers the soft cancer, in distinction to scirrhous, or hard cancer; by others, carcinmoma medullare, or brain-like cancer; fungus hæmatoides, or bleeding fungus. It is that form of malignant disease which is more certain to return after an operation than any other; yet, notwithstanding this, it is often our duty to operate, not with the hope of saving life, but with the certainty of removing a loathsome mass, which makes life wretched. In many of these cases, the operation prolongs life, though not to the natural period of man. The rule which I have found, on the whole, the most safe and judicious, in regard to amputation of the breast for malignant disease, is this—to operate in all cases in which your advice is sought in the early stages of growth, before the surrounding glands are implicated, and the patient's health not so much impaired as to render the immediate effects of the operation dangerous;—to operate in cases like the present, where the growth of the disease is more rapid than the inroads upon the health of the sufferer; where a loathsome mass goes on sprouting, bleeding, ulcerating, discharging, and sloughing, to the infinite disgust and distress of its victim; where there appears no prospect of death putting a speedy end to her agony; and where the powers of life are so unequivocal that the operation does not threaten any immediate danger.

The cases in which I would not operate are those cases of scirrhous, stony cancer, which have been advancing slowly, silently, and painlessly for years, without much observation or anxiety on the part of the patient, and without any knowledge on the part of the friends; where a mass has gradually been formed, implicating not merely the whole mamma, but also the glands in the axilla, and sometimes the glands above the clavicle; attached to the pectoral muscle, and even to the intercostal muscles and ribs, before the surgeon sees it at all. In such instances, it is no charity to operate. The disease often remains dormant for years, or it extends inwardly, with little outward ulceration; the patient at last sinks gently into the grave, from the constitutional depression of the disease, and not from a local drain. I would not operate when the patient is old and feeble, when the immediate effect of the operation is doubtful.

When the patient, whose case I am about to relate, first came into the hospital, the disease had advanced so far into the axilla that the removal of the whole of it was out of the question, and her pallid countenance, worn features, and general appearance of debility seemed to preclude the idea of amputating such an enormous mass of active disease without extinguishing the vital flame. However, as her sojourn with us was prolonged, so her general health improved; but the disease advanced with rapid strides, till at last I could not in charity resist the desire to relieve her by one broad cut, believing, and

the event has proved I was right, that I could do it without endangering her life. One of our old physicians here, I think it was Dr. Fordyce, said "thank God for opium?" May we not indeed say "thank God for chloroform" in such cases as this? The operation was performed without her knowledge, and she slept the same night better than she had done for months, and she has now a healthy wound instead of a festering mass of corruption.

[The subject of these clinical remarks was a married woman, aged 44, who had had eight children. The disease had commenced eight months after her last confinement, and eight months before her admission into hospital, by pain in the axilla and shoulder; in the course of time a swelling was discovered in the breast, which gradually increased and became more painful, the mamma, though enlarged, was soft and elastic, very like chronic abscess; it ulcerated, and then the bleeding fungous mass sprouted out and increased rapidly; the axillary glands were enlarged—nothing gave her any relief, and, under these circumstances, Mr. Solly thought it best to remove the entire diseased mass, not with the hope of curing her, but simply to relieve her from her agony and the profuse foul discharge..]

The progress of this case since the operation amply justifies its performance. I am now sorry that I did not operate on her sooner after her admission. I know that the disease is not eradicated, but I hope that it will take an inward course, which is far less distressing to its victim, and the liver seems to be the seat of it. The chloride of bromine has been recommended as a specific in cancer. I have only as yet tried it in two cases, but in neither have I seen any beneficial result. In some cases, I have thought that Dr. Arnott's apparatus has retarded the growth of this disease, and that in open cancer it has rendered the ulcer less offensive. On the whole, I have, however, been disappointed in its effect, and I seldom employ it now in any case.

In the performance of these operations, you must not attempt to save much skin with the idea of getting the wound to heal rapidly with the first intention. When the disease returns externally, it is generally on the skin which forms the edge of the cicatrix, looking as if we might have prevented it if we had taken a little more of the integument. You must also be very careful to dissect the pectoral muscle very cleanly; do not leave any cellular tissue over it. In making your first incision, remember that you make it below the mamma, and then the blood flows away from your knife, so that you see each tissue more distinctly as you expose it. Examine carefully the surface of the wound, in order to satisfy yourself that you have left no palpable piece behind. Also make a section of the tumour. This enables you to see if you have removed a circle of healthy cellular tissue beyond its margin.

These cases, in private practice, are the most disagreeable and

unsatisfactory that you can have to do with. Of course, your conduct will have to be guided alone by a strict sense of duty : you will neither be tempted to operate on account of the fee, nor tempted to refuse on account of the discredit which follows in consequence of a return of the disease. You will calmly consider what is on the whole best for your patient, swayed neither by her fears or those of her friends, nor by the prejudices of the practitioner in attendance, if such there be to contend with. It is most important that the patient herself should not know all your fears and all your doubts ; it is most important that one or more judicious friends should know your real opinion. In these melancholy cases the husband is seldom the person who can be trusted. Fortunately for us, as no man living can say positively that the disease must return and must be fatal, we are justified in giving the sufferer the benefit of the doubt, particularly when hope itself may be the means of prolonging, if not of saving life.—*Lancet, Jan.* 5, 1856, *p.* 6.

12.—ON DR. LANDOLFI'S METHOD OF TREATING CANCER.

By Dr. Ch. Lasegue.

[Dr. Landolfi does not belong to the class of habitual blazoners of secret remedies ; his method is not enveloped in any mystery ; he is anxious to propagate his processes for the sake of humanity, and submits them to the investigations of men of science. He has courted a publicity which enemies, as well as friends, have admitted to be honourable, and therefore demands the attention he deserves.]

The principle on which the treatment is based consists in transforming a tumour of a malignant nature by conferring on it a character of benignity which admits of cure. This transformation is effected by cauterizations with an agent looked upon as specific,—the chloride of bromine,—combined or not with other substances which have already been very frequently tried, but have hitherto been employed separately. The internal treatment is merely auxiliary.

The formulas for the caustic are, except in a few cases, the following :—Equal parts of the chlorides of bromine, zinc, gold, and antimony, mixed with a sufficient quantity of flour to form a viscid paste.

The foregoing is the formula the author chiefly used in Italy ; at Vienna he seems to have preferred a mixture of the same substances in other proportions :—

Chloride of bromine, 3 parts ; chloride of zinc, 2 parts ; chlorides of antimony and gold, of each one part ; made into a thick paste with powdered liquorice root. This preparation should be made in an open place, on account of the fumes which are disengaged.

The essential element is the chloride of bromine, which, especially in the latter experiments, has often been employed alone without the addition of adjuvants :—Chloride of bromine, from $2\frac{1}{2}$ to 4 drachms ; powdered liquorice, as much as sufficient.

According to Dr. Landolfi's views, the chloride of zinc is indispensable in ulcerated cancers, in which it acts as a hemostatic. The chloride of gold is only rarely useful; it is particularly indicated in cases of encephaloid cancer, in which it exercises a special, if not a specific action. Cancers of the skin, epitheliomas, lupus, and small cystosarcomas, are treated with chloride of bromine mixed with basilicon in the proportion of one part to eight.

At first the author contented himself with spreading the paste on a cloth large enough to cover the diseased part, recommending that the thickness of the plaster should be proportioned to the depth to which it was intended its action should reach; he calculated that an epithem of a line in thickness should act to the depth of about half an inch. Subsequently he has had recourse to a more complicated method, and has adopted additional precautions, which we shall describe at length.

The healthy parts surrounding the heterologous tumour are covered with strips of cloth, from an inch and a half to two inches wide, smeared with a pomade composed of four parts of chloroform and thirty of lard, or what is better, of cold cream; the specific paste is afterwards spread to the required thickness on compresses, and gently applied to the part affected. At this period of the operation the precautions mentioned above, in reference to the pharmaceutic manipulation, must be observed, and the patient must be kept near an open window, to avoid the injurious effects of the vapours of chlorine. The paste is not to be spread on a single compress of the size of the lesion, but on small portions of linen placed side by side, or even imbricated, so as to insure closer contact with the subjacent parts. The application of the paste ought not to extend to the healthy parts, its action being often propagated through a space of one or two lines.

When the dressing has been so far completed, it is to be covered with a pledget of lint, and a layer of compresses retained in situ with strips of diachylon.

To a tolerably sharp sensation of heat, pains often very intense soon succeed, and last from four to six hours, and even longer. A tablespoonful of the following mixture may be given every hour during the continuance of the pains:—Hoffman's anodyne liquor, laudanum, of each, 1 drachm; syrup of orange-peel, 2 ounces; distilled water, 3 ounces.

The paste, which was formerly kept on from ten to fifteen days, is now most frequently not allowed to remain on beyond twenty-four hours. On removing the dressing, a line of demarcation is almost always found separating the healthy from the morbidly altered parts; the tumour itself is in part whitish, in part reddish, or marbled with yellow and blue. The caustic is replaced with poultices of crumb of bread or lettuce leaves, or with compresses smeared with basilicon ointment, which are renewed every third hour until the scar is detached. The pain progressively diminishes, if it has not completely disappeared,

in proportion as the mortification advances. The line of demarcation becomes daily more evident. About the fourth or fifth day the cauterized portion begins to rise, and from the eighth to the fifteenth day it becomes detached, or can be removed without pain by means of a forceps, leaving exposed a suppurating surface secreting pus of good quality, and covered with healthy granulations. If any points remain of less satisfactory appearance, or still presenting traces of the former alteration, a little of the caustic paste is to be again applied. The wound is otherwise dressed according to the rules observed in the treatment of simple ulcers, whether with linen spread with cerate, or with balsamic ointments, or, if the suppuration proceeds too slowly, with lint dipped in the following solution :—Chloride of bromine, from 20 to 30 drops ; Goulard's extract, from one to two drachms ; distilled water, 16 ounces.

In the majority of cases, healing takes place rapidly ; cicatrization progresses from the circumference to the centre ; no complications supervene, and the cicatrix resembles that left by a cutting instrument. The general state is very satisfactory, without Dr. Landolfi having made any change in the usual regimen of the patients : those cancerous individuals for whom a perfect cure is not expected experience remarkable relief. Notwithstanding the occasionally great degree of local pain, febrile reaction is not demonstrable.

All the observers who have watched the experiments agree in their statements of the facts we have just described, from whatever point of view they may have regarded them, and they come before us with the guarantee of the most respectable authorities.

As to internal treatment, we have said that the Neapolitan Professor considers it as an auxiliary to which it is not always necessary to have recourse. He admits that the modification produced by the chloride of bromine, employed externally, is not merely local, but that absorption of the specific by the skin, or by the wound, also takes place. It is as complementary to the treatment, and to prevent relapses, that he prescribes especially the internal preparation of the remedy, of which the following are the formulæ :—Chloride of bromine, 2 drops ; powder of the seeds of water fennel, 23 grains ; extract of hemlock, 12 grains : mix and divide into twenty pills, one to be taken daily for two months, and after that time two pills daily.

Chloride of bromine, 1½ drop ; powder of the seeds of water fennel, 15 grains ; extract of hemlock or aconite, 8 grains : mix and divide into ten pills, one to be taken morning and evening for six months.

Lastly, in cancerous affections of the uterus, when the cancers of the parts most easily accessible are too extensive to be cauterized, when the cancerous cachexy has reached the highest pitch, the following solution is employed as a local modifier :—Chloride of bromine, from 10 to 20 drops ; distilled water, 16 ounces.

We have thus described most minutely the operative manipulation practised by Dr. Landolfi, and the pharmaceutic preparations to which

he has recourse, thus opening the way to a testing of his system. It would be of little use to have described these processes without at the same time endeavouring, with the assistance of published observations, briefly to estimate their value.

Our object, as we have already stated, is not here to enter on a discussion, the data for which would be wanting ; this is a task we leave to the Commission, whose ability and honour none will doubt. But mistrust is so legitimate when its object is a specific medication, the least semblance of assent is so dangerous, that it is our duty, before trying any of these methods, to make sure at least of the ground on which we stand.

The first question to be considered is that of the safety of the medication. The testimonies on this point agree so completely, that they command conviction ; none of the observers, whatever may have been the amount of favour or disfavour with which they regarded the system, who have closely watched the trials made of it in Italy or Germany, have noted any serious bad consequence as resulting from it. The local inflammation attending the elimination of the disease does not exceed the limits assigned it by the operator ; the general reaction is none, or is insignificant ; all agree in stating that the patients were relieved ; that they experienced no loss of appetite, of strength, or of sleep ; that, on the contrary, they from the first acquired a certain alacrity. This first datum, which appears to us to be established beyond dispute, is sufficient to save the consciences of the experimenters ; it perfectly legitimizes the steps taken by the administrators of the several hospitals, who have furnished the Professor with opportunities of propagating his mode of treatment.

The second question is more delicate. Were the tumours treated by Dr. Landolfi really of a cancerous nature ? Were there not, to explain a supposed success, errors of diagnosis such as are too frequently made in putting forward a curative method. Never was there a period at which people were less disposed quietly to accept cancers diagnosed in haste, and to support a cure. If definitive opinions are not always uniform, all agree as to the necessity for close examination, and of not trusting to appearances. It seems to us more than probable that among the patients submitted to treatment, tumours and ulcerations of all kinds must have been confounded under too general a denomination ; the descriptions are, by no means, all so explicit as to prevent us retaining some doubt as to the majority of the cases to which the most remarkable success is attributed. Dr. Landolfi has, like all inventors, found, along with sceptics, partisans prone to enthusiasm, and consequently inclined to magnify the merits of the discovery by exaggerating the severity of the disease ; but, whatever be the narrow limits of our confidence, we willingly concur in the judicious observations of Dr. Calderini. If carefully instituted experiments do not show that we have as yet obtained a specific for cancer, those which have been made justify us in believing that the plan recom-

mended by Dr. Landolfi fulfils valuable indications ; that it cures, without inflicting danger on the patients, tumours and ulcerations, the treatment of which was hitherto dangerous or difficult ; that it furnishes the surgeon with a modifier of great power, as well as of perfect safety ; that it improves sores for which we were hitherto deficient, even in palliatives ; finally, that its author deserves to be distinguished from the crowd of inventors, of whose discoveries nothing useful survives the day in which their panacea was proved to be neither specific nor infallible.

We have, in all frankness, expressed the opinion we felt ourselves bound to hold until we should receive more ample demonstration ; but in such matters, an opinion is not worth one fact. Statistics would perhaps be still less decisive, and we have, therefore, thought it well, notwithstanding the length of this statement, to bring forward some cases. Those published have been reported by medical men who appear to be favourable to the system, but who rest on scientific testimony ; they have been too recently observed to enable us to draw any legitimate conclusion as to the possibility of a relapse ; accordingly, we have abstained from speaking of the absolute curative value of the treatment, convinced that it would be premature to sustain any conclusion of this kind, and to anticipate the future. M. Landolfi's plan of treatment can only be judged by its actual results.

Dr. De Brunn witnessed cures effected in the city of Gotha, whither Dr. Landolfi was summoned on the 13th November, 1853, to attend a princess of the reigning family, and where he treated, in the space of two months, about 100 cancerous patients. Among the cases he reports, two especially deserve attention.

The first was that of a woman aged 59, affected with a tumour of the breast, examined by Meckel, of Berlin, and thus described by that microscopist :—The proper mass of the tumour consists of a reticulated structure, moderately supplied with bloodvessels in its fibrous tissue, in the midst of which meshes or alveoli are plainly observed filled with characteristic cancer cells.

The tumour, discovered about a year before, and at first lost in a general swelling of the breast, had become more and more isolate ; it was hard to the touch, angular, had resisted the several means indicated, and had finally ulcerated, forming an ichorous excoriation, with thick and elevated edges. The paste was applied on the 14th of November. On the 25th the eschar was removed with the forceps without pain or hemorrhage ; the sore, not being considered to be in a satisfactory state, was submitted to fresh applications of the caustic, which were continued until the 4th of December. On the 23rd of January, the sore, which had first been converted into a huge cavity, had cicatrized, with the exception of excoriations of the size of a bean.

The second case we shall quote is that of a woman from Berlin, aged 60, who had for twenty years laboured under a hard tumour

situated at the outer side of the left breast. This tumour, which was during the last seven years in a state of ulceration, was very painful, had a bad smell, and gave rise to frequent hemorrhages; there was an almost constantly febrile condition, debility, and depression. At the time the treatment commenced (23rd November), the ulcer extended to the edge of the axilla; it was five inches in length and three in height. The edges were callous and strongly adherent; towards the posterior boundary was a group of knotty tumours discharging sanies.

M. Landolfi diagnosed a fungus hematodes; microscopic examination by Meckel proved it to be a medullary fungus. On the 3rd of December the bottom of the sore was clean and covered with recent granulations; the edges remained hard and knotty. The application of the chloride was repeated. On the 15th the granulations were well developed, the edges were inclined to close; a smooth and clean cicatrix was established. The patient's general state was improved, the improvement progressed rapidly, and on the 15th January the cure was complete, after the disease had lasted for twenty years.

At Vienna Dr. Landolfi likewise treated, from the beginning of June to the end of July, a great number of cancerous patients. The anonymous author who brought the results before the Society of Medicine quotes at greater or less length 33 cases which he observed himself, and which are thus analyzed:—Pseudoplasm of the breasts, 17 females; of the nose, 4; cancer of the lips, 2; of other parts of the face, 5; cancerous infiltration of the axillary glands, of the ribs, and of the scapula, 2: extensive carcinoma of the inguinal glands, 1; encysted cancer, 1.—*Dub. Quarterly Journal, Nov.* 1855, *p.* 481.

13.—ON THE AVERAGE DURATION OF LIFE IN PATIENTS WITH SCIRRHOUS CANCER OF THE BREAST.

By James Paget, Esq., F.R.S., Assistant Surgeon to St. Bartholomew's Hospital.

[In a lecture delivered in 1852, at the Royal College of Surgeons, Mr. Paget made a statement, that the average duration of life in these cases was thirteen months longer when the disease was left to itself, than when the diseased breast was removed by operation. More extended experience from the averages of a greater number of cases shews that this is not correct. We therefore insert a more nearly accurate statement of the average duration of life in both classes.]

Records which I have made or collected of 139 cases of scirrhous cancer of the breast, watched to their conclusions, or to their survivals beyond the average duration, give the following results:—

In 75 not submitted to operation, the average duration of life, after the patient's first observation of the disease, has been 48 months. In

64 submitted to operation, and surviving its immediate consequences, the corresponding average has been a little more than 52 months. The longest duration of life, in the former class, has been 216 months; in the latter class, 146; the shortest, in the former, was 7 months; in the latter $7\frac{1}{2}$.

The proportionate numbers of the deaths (with the deaths I have included in this table the numbers of those who are still living beyond the average period. The omission of them would have made no difference in relation to the questions concerning the influence of the removal of the cancerous breast), in each year, after the first observations of the disease, may be represented by the following table;—

	With Operation. Per Cent.	Without Operation. Per Cent.
In the first year, there died	4·7	8
„ second „	6·25	22·6
„ third „	21·8	24·
„ fourth „	14·	9·37
„ fifth „	20·	7·3
„ sixth „	11·	5·3
„ seventh „	9·37	9·37
„ eighth „	3·12	2·66
„ years after the eighth	9·37	12·

When the extremes of duration are so widely different as they are here shown to be, a perfectly reliable average cannot be obtained, unless the numbers of cases are, on both sides, larger than those supplied by my records. I could have easily made the numbers larger by including doubtful, or only probable, cases of cancer of the breast, but tables so made up seem worse than useless. I believe, therefore, that the results here stated are only near the truth, and that the collection of more cases will in some measure alter them.

Thus, it is nearly certain that the averages stated above are, on both sides, rather too low, for twenty of the patients (i. e., one-seventh of the whole number) are, or were, still living, after having survived the average time of duration with the disease. Moreover, as cases of the longest duration are the most likely to be lost sight of before their record is completed, it will generally happen that a collection of cases will include a disproportionately large number of those of short duration. Allowing, however, for these causes of reduction in the calculated average durations of life, there appears no reason to expect that any number of completed and unselected cases will prove an average duration of more than five years from the first observation of the disease.

The sources of error above referred to would, I think, especially reduce the estimate of the average duration of the cases in which no operation is performed; for unless cases are kept with an express intention of recording all that occur, without any selection whatever,

there will be a tendency to omit a disproportionate number of those which are not made interesting, either by operations, or by some of those striking events which are most common in acute cases. Hence, the records will generally contain too few of the most chronic cases in which no operation has been performed. I have expressly avoided this error in my own note-books, by avoiding everything like a selection of cases for record; but I cannot be quite sure that the same rule has been observed in some of the records from which I have derived cases observed by others. I can find, however, no reason to believe that any full and accurate tables of cases will bring out, as a result, that patients, in whom cancer of the breast is left to pursue its course, live longer, on an average, than those from whom it is removed. Rather, I believe that, if care be taken in the discrimination of the cases appropriate for the operation, and in the rejection of those that are unfit, there will appear a gradually-increasing, though it may be always a small, advantage in favour of the cases in which the breast is removed. Probably it may be ascribed, in some measure, to such care, that the additional and continued cases, which I have tabulated in the last two years and a half, make the average duration in those operated on rather longer, and that in those not operated on, rather shorter than it appeared in 1853.

With regard to the rules that may be observed in the selection of the cases most fit for operation, I may refer to the published lecture; continued observations having only confirmed the statements made therein. I will only refer to one fact, which the table printed above shows—namely, that the proportion of deaths, in the first two years of the disease, is much less in those who are operated on than in those who are left; amounting in the former to less than eleven per cent., in the latter to more than thirty per cent. Such a result, while it justifies the operation in the cases of acute cancers which are not attended with violent cachexia, may be fairly set against the mortality from the operation itself, which I still believe to be not less than ten per cent.—*Lancet, Jan.* 19, 1856, *p.* 62.

DISEASES AFFECTING THE NERVOUS SYSTEM.

14.—CASES ILLUSTRATING THE ETIOLOGY AND TREATMENT OF EPILEPSY.

By Dr. Robert Hunt.

[The author of this paper maintains that an abnormal excess of alkali in the blood directly predisposes the nervous system to disease, and not only this, but also that it probably causes various chemical changes in the blood, which result in the generation or retention of noxious matters in the system, which excite a tendency to spasm and convulsions.]

It is admitted, that when one of the stronger acids is taken into the system, it separates one or more of the weaker acids from their bases;

and they in their turn separate those having weaker affinities than themselves. A series of decompositions and recombinations thus take place, each change involving the formation of compounds endowed with different properties from the one decomposed, and capable of exciting different and perhaps specific effects on the animal economy, which are made manifest by trains of morbid actions, corresponding with the changes taking place in the blood. We may. therefore, presume, from a parity of reasoning, that the presence in the blood of an undue quantity of an alkali, for which the acids in that fluid have a greater affinity than for the base with which they happen to be combined, will in like manner occasion a series of decompositions snd recombinations, only in the opposite direction. It is also probable that, in this way, a great excess of alkali may prevent certain normal changes among the various ingredients in the blood, which are necessary for the elimination of some of the noxious matters generated by, or derived from, the natural disintegration of the tissues of the body—the cyanide of ammonia, urea, for example. In confirmation of this hypothesis, I will quote a passage from the introduction to the work of Dr. Prout, so often referred to. In treating of urea he says, "Alkalies scarcely affect urea at low temperatures; but, when assisted by heat, they rapidly convert it (together with water) into carbonate of ammonia." It is, therefore, a fair inference, that if alkalies decompose urea when formed, they will also prevent its elements combining so as to form it; an idea that is strengthened by the fact asserted by Dr. Prout, "that the quantity of urea in the urine (of persons in whose blood there is an undue amount of alkali) is usually deficient, while the quantity of soda and ammonia is in excess."

These are points of great interest in investigating the causes of epilepsy, because in whatever form the elements of urea, especially the noxious ingredient cyanogen, may enter, they will, if retained in the system, probably account for many of the symptoms from which epileptics suffer so much, if not for the epileptic convulsion itself; for it is more than probable that when cyanogen or a cyanide has accumulated to a certain extent, it will act on the brain and spinal cord as it does in the form of hydrocyanic acid, which, according to Dr. Pereira, "when given in large doses, but not sufficient to cause instant death, occasions convulsions;" and it would be likely, in smaller quantities, to produce those transient nervous symptoms, sudden faintness, momentary loss of consciousness, and those feelings of undefined terror and want of self-confidence so conspicuous in epileptics, especially as the period of a recurrence of fits approaches, and which, together with feelings of general nervous irritability, progressively increase up to the moment of the convulsion, and usually subside after the fit: as if the cause, whether it be a materies morbi or not, having accumulated so as to produce an attack, is expended during the violent muscular and nervous action which constitutes a fit.

Having made these preliminary observations, I will proceed with

the narration of the cases, the study of which suggested the preceding remarks and theory, and led to the adoption of a novel mode of treatment, which has proved, as far as it has been tried, singularly successful.

Case. —Mr. B., aged 18, passed the summer of 1851 in a malarious district. Towards the autumn, he perceived a manifest change gradually coming over him: he became languid and incapable of exertion, and his intellectual faculties so dull, that he was unable to prosecute his studies. In a short time headache supervened, and steadily increased in intensity. He then came to London for advice. I found him suffering from a severe pain over the left temple, which occurred daily about twelve o'clock, and continued for four hours; but the severity of the pain alone subsided, for he was never perfectly easy. It was a kind of remittent headache. The tongue was loaded, the skin and eyes dingy, and half jaundiced, the urine scanty, and tinged with the colouring matter of bile, the bowels constipated, and the abdomen full, hard and unyielding. I prescribed an emetic, and a brisk cathartic, which brought away a large quantity of vitiated bile, and afforded great relief. As soon as the liver and portal system were thoroughly unloaded by a repetition of the latter remedies, the constancy of the headache entirely ceased, and the pain assumed a regular intermittent type with intervals of perfect ease.

This was quickly cured by quinine. He was then sent into the country to recover his strength. Although the pain did not return, a general feeling of malaise remained, which he could not throw off. He continued in this uncomfortable condition for several weeks, when he was attacked while dancing, in a very singular manner. His deep manly voice suddenly changed into a squeaking puerile tone, his conversation was rather childish than irrational; at first the lady, with whom he was talking, though this alteration in his voice and manner was assumed; but presently he began to stare about the room in an unmeaning way; he was then led to a chair, he was no sooner seated than his head dropped forward, and he became insensible. He recovered his consciousness in a few minutes, but was not at all aware of what had happened. I saw him on the following day, and witnessed a similar attack, in which, before he was insensible, he closely resembled a person in a state of somnambulism.

Great difficulty was experienced in tracing this anomalous affection to its true cause; but, as it was evident from the abnormal state of the secretions that the general health was much disordered, I determined to apply my remedies to rectify it in correcting them. The alvine discharges were of a mixed character, portions being very dark, while other portions were of a pale clay colour; the urine was pale and slightly acid, the tongue a little furred, the pulse slow and feeble, the complexion tolerably clear. I prescribed a course of alteratives and mild aperients, combined with vegetable tonics and aromatics. The dark appearance of the stools was soon removed, but there was still a

deficiency of bile, and the urine became at the same time paler and almost neutral, but not positively alkaline. During this treatment all the nervous symptoms steadily increased, and my patient often dropped senseless on the ground, sometimes without warning, and remained a long time insensible. Vegetable and mineral tonics were now given; but under their use, the disease still growing worse, a consultation was held, first with Sir Henry Holland, and subsequently with Dr. Marshall Hall, both of whom recommended me to return to the general treatment I had first adopted. The disease, however, rapidly increased in violence. The delirium sometimes continued several days without intermission, excepting during the fits of insensibility, which were now accompanied by convulsions, affecting both sides of the body alike. The alvine discharges still showed a marked deficiency of bile; the complexion had become unnaturally pale and clear, resembling the appearance of a person who had long resided in a tropical climate. The urine was limpid, of a low specific gravity, almost neutral, and contained little else than a large quantity of the chloride of sodium, with scarcely a trace of urea.

I then prescribed the nitro-muriatic acid bath, in which he was to remain for twenty minutes every night. I also gave him 20 minims of the dilute nitro-muriatic acid twice a-day before meals, and a compound rhubarb pill every night. I advised also that a moderate quantity of subacid fruits should be added to his diet, and lemon-juice or vinegar to be freely used in the preparation of his food. The good effect of this treatment was immediately perceptible.

In the course of a few days my patient expressed himself as feeling better, and as having more nervous energy. In the course of ten days, the alvine discharges were evidently more tinged with bile, and the urine more acid. At the expiration of another fortnight, many of the nervous symptoms abated; and at the end of six weeks there was a manifest decline in the delirium, which then rarely continued more than a few minutes, and soon afterwards ceased altogether. The next improvement was a gradual diminution in the violence and duration of the fits, and of the insensibility following them; and the fits themselves ceased to return about ten weeks after the commencement of the acid treatment. In order to confirm the cure, the baths were used occasionally for several months, and were not entirely laid aside until the lithate of ammonia was freely deposited in the urine, which I consider a sure indication of a complete change having taken place in the system. Since that time, now four years ago, this gentleman has remained in perfect health.

I am well aware how difficult and dangerous it is to determine how much of such a cure is to be attributed to the treatment employed; yet the effect of the acid remedies was so immediate and decided, that it is impossible not to believe that they had some share in bringing it about; especially when we remember how successfully a combination of acids and purgatives was administered, and how greatly the epilepsy

was aggravated by the saline and alkaline remedies in the first case. The case of this gentleman is also peculiarly valuable, for we rarely meet with one, in which the regular gradation of changes in the symptoms can be so clearly traced to corresponding changes taking place in the blood; for there can be no doubt that the primary symptoms—the loss of energy, depression of the vital powers, and the dulness of the intellectual faculties, were caused by the contamination of the blood from the inhalation of malaria; and that to this cause may also be attributed the derangement of the functions of the liver. The complete relief of the constant headache, by the removal of the accumulated bile, proved that at least the constancy of the pain was caused by the hepatic disorder. The accumulated bile having been removed, the malarious poison was enabled to exert its specific influence on the nervous system; the headache he consequently assumed a regular intermittent type, until checked by the anti-periodic properties of quinine. The connexion between the subsequent nervous symptoms and state of the blood, is perhaps not so clear; yet the relation between them is sufficiently well marked to warrant the presumption that they were in some way connected, as cause and effect.

The absence of bile in the alvine discharges, showed that some of the ingredients of that secretion were retained in the system, whilst the analysis proved the presence of an undue quantity of soda in the urine, consequently in the blood from which it was derived; and this, according to Dr. Prout, is likely to have acted on the brain in a very deleterious manner, and to have produced the delirium, as it did in the case he refers to. And according to the theory suggested in the beginning of this paper, the undue quantity of soda probably prevented the extrication of urea, which would account for many of the nervous symptoms, and not unlikely for the fit itself.

This is, at least, a plausible explanation of the various morbid phemena manifested in the progress of this instructive case, and its correctness is supported by the fact, that the delirium and other nervous symptoms commenced with the imperfect secretion of bile and the retention of its ingredients, and that they increased in proportion as those ingredients accumulated; and progressively declined from the day the liver began to resume its functions, and the abnormal state of the blood was corrected by the acid treatment.

[The acid treatment being so remarkably beneficial in this last case, Dr. Hunt was induced to try it in one which had long been considered hopeless, and which threatened ultimately to destroy both mind and body. She was an unmarried lady. The fits commenced at the age of 35, and had recurred at intervals of three or four weeks for nine or ten years; her memory had been much impaired, and she had lost the firmness of nerve and power of reasoning for which she had previously been remarkable.]

I had an opportunity of witnessing an attack in 1852. I was awoke about four o'clock in the morning by a scream, and, when I reached the lady's room, I found her in a violent fit; the convulsions

lasted several minutes, and were followed by a deep comatose sleep. At this time her general health appeared good; the bowels regular; the discharges rather paler than natural; the urine of a pale citron colour, with opalescent crystals on its surface; the specific gravity 1·006; it was very slightly acid; and there was a cloud of the phosphates deposited on boiling. I regret that I was unable to have it carefully analyzed. The catamenia were regular, and normal in quantity and quality. The tongue was clean; the pulse feeble and easily accelerated. The skin was tinged with a bluish-grey colour, the consequence of her having taken large doses of the nitrate of silver for several months. There was a general want of nervous power, which obliged her to have recourse to sal volatile or wine three or four times a-day, to enable her to perform her usual domestic duties.

The acid treatment was commenced in the summer of 1852; the nitro-muriatic acid bath was ordered to be used every night, and 20 minims of the dilute acid taken twice a-day in a glass of water, and an occasional dose of pills composed of equal parts of extractum colocynth. comp. et pil. galbani comp. I directed that her diet should consist of a moderate quantity of animal food, blended with green vegetables and sub-acid fruits, and that she should drink half-a-pint of cider with her luncheon and dinner.

The beneficial effects of this treatment were as quickly made evident as in the last case; first, by an improved tone of the nervous system, which enabled her, in the course of a month, to dispense with the stimulants she had been reluctantly obliged to take. The next perceptible improvement was a diminution of those sensations she called "the lesser faintnesses," and there was no return of the fits for thirteen weeks after the treatment was commenced. At the expiration of that period she unfortunately received a severe shock from being present at the sudden death of a friend, and she was also exposed to great fatigue and anxiety, which interrupted the use of the bath and other remedies. On the 3rd of September, a few weeks after they were discontinued, she had a fit, but it was not so violent as before, neither was it followed by the usual sleep; and there was another fit on the 8th, which left great weakness. The bath, &c., were immediately resumed, and soon produced an evident improvement, both in the patient's strength and the gradual removal of those feelings of undefined dread which had occasioned her so much distress. Unfortunately, at the expiration of two months, the serious illness of a relative occasioned great anxiety, and obliged her to overtax her strength, and to discontinue her remedies. She immediately began to decline, and on the 8th of December, four weeks after the treatment had been discontinued, she had three fits in quick succession. The bath, &c., were again resumed, and steadily employed for six months, excepting when the acid irritated the skin. On the 28th of February, 1853, she suddenly became weak, but not insensible; nor was the weakness preceded by the usual nervous symptoms. On the 22nd of March there was a similar attack, but still slighter than the former: it only

amounted to an uncomfortable sensation, which quickly subsided; from that time to this, now more than three years, there has not been the least indication of a relapse, and, what is not only satisfactory, but important in regard to the power of the acids to restore tone to the nervous system, she now remembers passing events nearly as well as before her illness; but much of what had occurred during it, even what at the time was of a painful nature, as well as a large portion of her previously acquired knowledge, have escaped altogether; yet she feels assured that the latter is gradually returning, and her medical attendant is of opinion, judging from the evident improvement that is still taking place, that her memory will be ultimately restored.

To confirm the cure, I advised an occasional use of the bath for a fortnight at a time, whenever the colour of the secretions from the bowels should indicate a deficiency of bile, or the urine be abnormally pale for many days together.

I regret that I cannot give a more minute description of the various symptoms which manifested themselves in the progress of the cure, as my patient lived at a great distance from London; but I was informed that the acid bath produced great irritation on the skin, and slight sloughs in the early part of the treatment; and that, in the course of a few months, the urine occasionally deposited a red sediment, which had not been observed for many years before the first occurrence of the fits.

From the want of a minute and accurate analysis of the urine, it is impossible to determine whether the system was in exactly the same state as in the former instance; yet, as well as I could judge from the general symptoms, there was evidently a great similarity between them, and I think no doubt can be entertained that the relief was owing to the treatment adopted; for, although the relapses occasioned a temporary distrust, they clearly prove its efficacy: 1st, from the fits having recurred on two occasions when the bath had been discontinued for a few weeks; 2nd, from the improvement which almost immediately took place each time on its resumption.

The next case is an equally important one, as it also shows the general power of this novel application of acid remedies in restoring strength to, and allaying the morbid sensibility of, the nervous system, as well as in curing epilepsy.

Case.—Mr. ——, aged 22, was first attacked with epilepsy at the age of 13. His illness was attributed to an insufficient diet, and to the many privations and hardships he had been exposed to at a public school. The fits at first returned irregularly, but for several years they have recurred about every three or four weeks; he, however, has seldom passed many days without experiencing minor attacks, similar to those nervous sensations described in the last case as faintness. The disease gradually impaired the tone of the nervous system, and at length rendered it so sensitive that any sudden sound, such as a loud ring of a bell, immediately produced a severe shock; and, if the period

for a return of the fits happened to be near, it almost invariably brought one on. The disease has also seriously injured the intellectual faculties, so as to render him incapable of study, or of any pursuit requiring steady application, or continuous thinking. Although not insane, he became irritable and violent, and so completely lost all control over himself, that he was obliged to be separated from his family, and placed under the superintendence of a medical man.

I first saw him in January, 1854. His general health then appeared good ; his complexion was pale and transparent ; his appetite voracious. He suffered from indigestion, which, however, arose more from the quantity of food he ate then from any disorder or inherent weakness in the stomach itself, and he was always benefited by moderate purging. The tongue was perfectly clean, and he was free from pain or confusion in his head. The pulse was soft and compressible. He gave me a clear account of his symptoms and habits ; but I was afterwards informed, that it was rather a cunning description, for the purpose of concealing his propensities than a true statement. An opportunity was given me of witnessing the effect of a sudden sound on him. The house-bell was rung loudly. He immediately sprang from his chair in great distress, his breathing was suspended, his heart fluttered, and his pulse beat rapidly, and he did not recover from the shock for several minutes. The urine was pale, and passed in considerable quantity. It was slightly acid ; the specific gravity, 1·0247 ; dried residue, 5·81 per cent. ; ash in residue, 1·80 ; chloride of sodium in the ash, 1·005, and only a trace of urea.

The acid treatment was immediately commenced, but, through some misunderstanding, it was imperfectly carried out. He simply sponged himself with a solution of the nitro-muriatic acid once daily for a few minutes. As this gentleman did not live in London, I did not see him after the first interview for several months ; I then ascertained the mistake, from finding the treatment had failed to produce any sensible effect either on the skin or the disease.

It was not until August, 1854, that he began to use the remedies properly, and to take the acid internally. As circumstances prevented the employment of the bath, he merely sponged the whole body twice a-day, for twenty minutes at each time. His bowels were kept freely moved by the compound extract of colocynth, and he was made to be more moderate in his diet. In the course of a month, the beneficial effect of the treatment was made evident by a gradual diminution of the morbid sensibility of the nervous system, which enabled him to bear the ringing of the bell, and other sounds, without experiencing any unpleasant feeling. The next improvement was the gradual cessation of the minor nervous attacks, a prolongation of the interval between the fits, and a diminution in the violence of the convulsions, until they entirely ceased. The last fit occurred on the 23rd of March, 1855, just six months after the acids were properly employed. This gentleman has since remained well, and is so much improved in temper,

and has acquired such a control over himself as to permit his returning to his friends, and to be employed in superintending a small farm.

Being desirous of ascertaining what alteration had taken place in his urine since his recovery, I submitted a specimen, which was passed before breakfast, to Mr. Medlock, for examination, and the following is his report :—

Specific gravity.....	1·026
Percentage of solid residue	5·05

The urine is strongly acid to test paper, and, on standing, deposited a considerable quantity of pure uric acid ; in other respects it appears to be of a healthy character, urea and phosphates being present in the usual proportions.

Case.—M. C., aged 11, was brought to me in September, 1853. He had been afflicted with epilepsy about two years. The first fit occurred at school, where he had been insufficiently nourished. It was attributed to a fright occasioned by a trick played on him by his schoolfellows. He was naturally quick and intelligent, but a sensitive child. Some time before the first fit he appeared dull, and unable to learn his lessons as well or as easily as he had been accustomed to do, and also to be unusually fearful. When I saw him he was pale and delicate, and his complexion presented the same transparency as in the preceding cases. He was very nervous and fearful, and showed evident terror at the idea of being left alone. His tongue was clean, his pulse quick and small, his eyes of a pearly whiteness. The bowels rather confined. The discharges were described as being pale, and the urine also pale, as well as clear. I prescribed the acid bath, and the internal use of the nitro-muriatic acid, and a sufficient quantity of an electuary, composed of equal quantities of sulphur, bitartrate of potash and syrup of ginger, to regulate the bowels.

The child was brought to me again at the end of a month, when I learnt that he had a fit a few days after his first visit, but none afterwards. He appeared stronger, and much less nervous and timid; and he allowed himself to be left alone for a few minutes without hesitation. I recommended a steady use of the same treatment, and that he should spend as much time as possible in out-door exercise, and that lessons of every kind should be strictly avoided. I did not see this patient again, but I was informed that the treatment had been so successful, and had apparently effected so complete a cure, that his parents thought they might safely send him to school after the Christmas vacation. They did so, and he appeared to bear his work pretty well for a few weeks ; he then began to feel confused, and soon afterwards he had a violent fit, in which he died.

This case, however, showed the power of these remedies to correct the state of the system on which the epilepsy depended ; not only by the cessation of the fits, but by the removal of that morbid nervous terror from which epileptics so frequently suffer ; and I think we may

assume, judging from the other cases, that if the treatment had been continued longer, and more time had been allowed for the brain to recover strength before the intellectual faculties were again exerted, the epilepsy would have been permanently cured, and the child's life preserved.

Case.—Miss L., aged 56, had suffered for six years from dizziness, which generally came on while walking out immediately after breakfast, sometimes so suddenly that there was neither time to return to the house, nor to sit down, before she would fall to the ground insensible, and on three occasions she remained unconscious for an hour and a quarter. I saw her in July, 1853. She was then slightly jaundiced; the tongue foul; the pulse feeble; the evacuations pale, sometimes nearly white; the urine pale and clear. I prescribed a course of saline aperients, with an occasional dose of pil. hydrarg. and pil. rhei comp. Under this treatment she became much worse, especially as to the dizziness and faintings. She consequently again came to town in September, 1853, with a friend, from whose description I found that the faintness and other nervous symptoms, which I had supposed arose from bile, were epileptic. The urine was then examined, and was found to contain an inordinate quantity of the chloride of sodium, (which, in the specimen analyzed, may have been partly derived from the soda given in her medicine,) and less than a normal amount of urea, and there was a considerable quantity of the phosphates; specific gravity, 1·020.

I prescribed the nitro-muriatic acid internally, and a dose of the compound rhubarb pill every other night. This plan was persisted in for six weeks; at the expiration of that time she appeared to have been restored to the same state as she was in before I first saw her. I then advised the acid sponging twice a day, and the drinking of strong lemonade, with a glass of sherry in it, both for luncheon and dinner, in addition to the internal use of the nitro-muriatic acid. The effect of this treatment was immediate and striking. She soon perceived a manifest improvement in her general feelings, as if more nervous vigour had been given her. The attacks of dizziness were evidently lessened. At the expiration of two months she wrote me that the dizziness had subsided altogether, and that she had not had a fit since she commenced the sponging. She further wrote, that she could not describe the improved state of her nerves better than by saying she had more the feelings of health than she had experienced for several years. She continued to use the acids for several months without interruption, and up to this time, February, 1856, she has remained perfectly well, although she has been exposed to severe affliction since her recovery.

[In another case of a young lady, aged 13, who had been subject to epileptic fits at intervals of three or four weeks, for two years there was an unusual large quantity of phosphates and a deficiency of urea

in the urine. The same acid treatment, externally and internally, with an occasional purgative, was here adopted with equal success: all nervous symptoms soon subsided, the phosphates disappeared, the urine became normal, and the patient appeared quite well.]

Although the following cannot be considered a case of true epilepsy, but an example of the hysterical form of that disease; yet it offers so many points of interest connected with the subject of these papers, particularly in regard to the injurious influence of alkalies and beneficial effect of acids on this class of nervous diseases, that I am tempted to describe it.

Case.—Mrs. ——, aged 30, a stout person, married, but has never been pregnant, consulted me during the latter part of my attendance on Case 2. This lady has been liable to sudden attacks of insensibility for several years; they are generally preceded by dimness of sight, confusion of ideas, and other symptoms of a disordered state of the nervous system. These symptoms seldom last more than a few seconds before she becomes unconscious, in which state she sometimes continues for twenty minutes. Although strong and robust in appearance, she is easily fatigued. The catamenia are regular, but the discharge is of a very dark colour; the bowels are constipated; the urine is pale, the specific gravity 1·006; it is slightly alkaline, and contains a considerable quantity of the phosphates and little urea. She complains of a distressing irritation in the uterus, to cure which, lunar caustic and other local remedies have been applied for several successive months without affording relief. The appetite and digestion are good, but she has an intense craving for sour fruit and acids of every kind, which have been forbidden for the last two years, and during that time her diet has been restricted to animal food, bread, and porter, to which she has strictly adhered.

Under these circumstances, I considered this case afforded an excellent opportunity of testing the virtue of the acid treatment, and of ascertaining whether the cure of Case 2 was really owing to that treatment, or was an accidental occurrence. The acid bath, and the nitro-muriatic acid internally, were therefore prescribed; and I also directed my patient to drink half a pint of cider with luncheon and dinner, and to eat freely of fruits and vegetables, which were enjoyed with a zest only known to those who, like sailors, have been long deprived of such necessary articles of diet. The effect of this treatment was really magical. In the course of ten days she felt as if new life had been given her; all the nervous symptoms rapidly subsided, and though the fits of insensibility were not overcome for several months, yet they so steadily declined that there could be no doubt that their subsidence was owing to the treatment adopted. She had a slight relapse during the following spring, which immediately yielded to similar remedies.

Remarks.—Notwithstanding the preceding cases are few in number, and although the urine was not examined so minutely in some of

them as it should have been, yet, while these patients continued to suffer from epilepsy, the analyses showed it to possess in all such a uniform and peculiar character, viz., low specific gravity, an unusually large proportion of mineral matters, especially of the chloride of sodium, and an exceedingly small quantity of urea and other organic matters, that it is not unreasonable to presume there must have been some connexion between the state of the blood, as indicated by the quality of the urine, and the disease in question, as cause and effect; and this presumption is supported by the fact, that all the nervous symptoms, as well as epilepsy itself, gradually declined in every case in proportion as the acid treatment corrected the abnormal state of the urine; and it is still further supported by my having ascertained that the urine had lost those peculiar qualities, in those cases in which it was examined six months after the disease was cured.

Whether the excess of soda causes absorption of the nerve-tissue in the way suggested, or whether it interferes with the nutrition of that tissue, post-mortem examinations show that in a large proportion of cases, the brains of epileptics are evidently diminished in volume: in some, the entire brain, while in others, only portions have appeared to have been atrophied; and in these instances, the spaces thus formed have been filled with fluid.

In support of Dr. Prout's opinion, that persons whose urine contains an abnormal quantity of soda or potash, are especially liable to spasmodic diseases, it may be stated, that numerous instances have occurred to me, in which convulsions, spasmodic asthma, laryngismus stridulus, have succeeded the suppression of eruptions, such as crusta lactea of children, eczema of the lower extremities of aged persons, the discharges from which are alkaline; and in many instances the cutaneous affection and those spasmodic diseases have alternated.

The connexion between the latter diseases and the abnormally alkaline state of the system so produced, is shown by the urine being normally acid while the skin is discharging, and by its becoming alkaline as soon as the discharge is suppressed; and it may be repeated, that the susceptibility of the nervous system is so great while the urine is in the latter state, that the most trivial exciting cause is often sufficient to provoke a fit, or spasm, as the case may be, and that this extreme susceptibility ceases as soon as the urine becomes acid on the re-appearance of the cutaneous discharge.

Lastly,—However true the theory propounded in these papers may be, of a certain condition of the system producing a liability to epilepsy and other convulsive diseases, (the difference between them arising perhaps from some modification of the exciting cause,) it is admitted that epilepsy often arises from irritation of the brain, from permanent physical causes, such as spiculæ of bone growing from the inner table of the skull, from tumours in the brain, &c. But it may be asked, how does it happen that the irritation being constant, the fits are not also constant? whereas it is well known that fits arising

from such causes only occur at intervals. The inference that this question leads to is, that there must be something, in addition to the permanent physical source of irritation, to account for the actual convulsion. We must, therefore, look for an explanation to some change taking place in the system, similar perhaps to the one I have suggested, in which the generation or retention of urea, or some other poison, occurs ; which, when it has accumulated to a certain extent, is likely to produce so great a disposition to convulsion, that the mechanical irritation, which under ordinary circumstances is not sufficient to excite a fit, may then provoke an attack, in the same way as a spasm of the glottis may be readily induced, when the nervous system has been rendered abnormally sensitive by the blood being surcharged with alkali by the suppression of the alkaline cutaneous discharge or other causes.

These papers have so greatly exceeded the length I anticipated, that they must now be brought to a conclusion, although I could have wished to have offered a few words on the various modes by which the abnormal state of the system I have attempted to describe can be produced, and on the modifications the acid treatment requires in different individuals ; but I must be satisfied with offering a caution to those who are inexperienced in the use of the acid bath : that it is a remedy of great power, and that it occasionally excites considerable disturbance of the system, but which can always be prevented by moderate care and attention.—*Med. Times and Gazette, Feb.* 9, *p.* 133 ; *March* 1, *p.* 206 ; *and March* 22, 1856, *p.* 279.

15.—ON THE TREATMENT OF AFFECTIONS OF THE NERVOUS SYSTEM WITH OXIDE OF ZINC.

By Dr. W. Marcet, Assistant Physician to Westminster Hospital.

[The following cases shew the powerful effects of oxide of zinc as a tonic and antispasmodic in diseases where the nervous system appears chiefly affected :]

Case 1.—Henry Jones, aged 35 years, a pork butcher, admitted as an out-patient on the 26th of May. Usually enjoys good health, but has a nervous temperament. About eight years ago he was suddenly seized with epileptic fits and occasional hallucinations, each fit lasting an hour, and returning every month. He cannot ascribe them to any thing but working in low damp cellars, where he minces meat, occasionally in a putrid state. The fits gradually increased in number, and after two or three months occurred as often as five or six times daily, each attack lasting about three minutes. In this state he was admitted as an out patient at the Westminister Hospital. As to the nature of these fits, the patient feels when they occur as if falling asleep, and becomes quite unconscious. His brother describes the fits as being attended with congestion of the face, slight foaming at

the mouth, and spasmodic contractions of the arms and legs. which symptoms suffice to show the nature of the disease. It is remarkable that the patient was much troubled with headache before being subject to these fits; but since he has fallen ill, the headache has quite disappeared. He always sleeps well, but has occasionally fits while in bed. There is no pain in the spinal cord, no numbness in the extremities; noises sometimes heard in the ears, and a weak sight; is very subject to vertigo. Appetite always very good; bowels regular; digestion healthy; seldom or never feels sick. Passes water quite freely; it is in general of a pale colour. The diet he takes is good; he was in the habit of drinking from three pints to two quarts of beer daily, but now he never takes more than one pint.

July 6th. Since admission on the 26th of May, he has been treated with oxide of zinc, beginning with one grain twice a day. On May 30th, a blister was applied behind the neck. On the 27th and 28th of June, the treatment was interrupted, when he was ordered to take twice a day two pills, each containing one grain and a half of assafœtida and as much aloes; and on the 29th, seven grains of oxide of zinc were prescribed. The fits have now (6th July) gradually diminished in number and duration; none have occurred for the last five days. He feels much less giddy, enjoys a greater flow of spirits, and has returned to work as a fishmonger.

[The fits still continued to recur, but at longer intervals. He remained under treatment for several months. The dose of the oxide of zinc was gradually increased to eighteen grains twice a day, and the fits, though occasional, became very slight.]

Case 2.—Julia Harris, aged 11, was admitted on the 24th of July, 1855. Three weeks before admission, she lost the use of the right arm and leg; the arm became seized with involuntary motions; and when, on admission, I kept her hand forcibly at rest, she could hardly grasp my fingers. I employed this method at every visit, to test the degree of the paralysis. The right leg has now become nearly quite powerless, and she can hardly walk. Complains of great headache; speech very difficult and indistinct. No affection of the sight: no noises perceived in the ears. Appetite very bad from the beginning. The only cause for the appearance of the above symptoms was rheumatic fever, which she suffered from for three weeks just before the chorea appeared. Never noticed any worms in excrements.

On the 25th, she began taking one grain of oxide of zinc morning and evening; but, on the 28th, no improvement being perceptible, the pills were omitted, and she was ordered one grain of blue pill, and one-fifth of a grain of opium twice a day. On the 1st of August, the morbid symptoms had rather increased; the oxide of zinc was then resumed instead of the mercury pills, which she continued to take regularly. From August 4th till September 5th, one grain of oxide of zinc was taken twice daily. On the 4th of August and 2nd of Sep-

tember, a small blister was also applied behind the neck, for the purpose of diminishing the headache. She took half an ounce of castor oil on the 5th of September, on which day the dose of oxide of zinc was increased to two grains. On the 12th, castor oil was again prescribed, to relieve the bowels. The 15th, she was directed to take three grains of oxide of zinc twice daily, and two drachms of cod-liver oil, three times a day, besides the pills. (The patient only took two drachms of cod-liver oil once a day, by mistake, until the 21st.) I may observe, that the patient had at this period nearly quite recovered. The chorea was hardly if at all perceptible; she could walk quite straight, and without difficulty; and the power of the hand was gradually increasing; so that it is impossible to attribute the recovery in this case to the cod-liver oil: still it appeared to hasten the cure, and may be useful in cases similar to this one, as an addition to the oxide of zinc. On the 18th, the dose of the oxide of zinc was increased to four grains, which she took twice a day, besides the cod-liver oil, until the 21st. She was now quite well; the pills were omitted, and the cod-liver oil continued until the 13th of October, as she had considerably fallen in flesh. On this day she was dismissed, cured.

Case 4.—Hannah Watts, aged 14, admitted on the 3rd of August. Has a healthy constitution, but suffers since the 27th of July from epileptic fits. During the attack, she is convulsed, and screams; becomes red in the face; grinds her teeth a great deal, and foams a little at the mouth. There is no cause to account for these fits, except perhaps an accident the girl met with when only eight years old, on which occasion she fell from a barge on the gravel, and received a severe wound on the left side of the scalp. Her sleep is very restless; she talks a great deal in her dreams, and attempts to get up whilst asleep. She complains much of headache, and, just before a fit, feels distinctly the aura epileptica. The fit was brought on first by a reprimand from her mistress, and continued occurring once daily until the 3rd of August. She had not been subject to epilepsy previous to the 27th of July, but had now and then what she calls a fainting fit, especially in summer. On the 3rd of August, the 5th, the 7th, the 10th, the 14th, and the 16th, she had one fit; from which date she continued to mend in all her symptoms, the fits not recurring; and on the 13th of October she was dismissed apparently cured.

Observations.—Oxide of zinc is one of the numerous tonics recommended for the treatment of nervous disorders; it has proved very useful in the hands of Dr. Herpin, of Geneva, and is considered as an important medical agent. Still, I am not aware that zinc, in form of oxide, has been found so efficacious in this country as abroad for the treatment of nervous affections; and my hospital practice offering a good opportunity of testing the value of this remedy, I have given the medicament in many cases of nervous affections. About nine out of every ten patients submitted to this treatment were either cured or remarkably relieved.

I have not yet employed this substance in a number of cases sufficiently extensive to allow me to state precisely where oxide of zinc ought to be administered or avoided, but from my observations it appears:—

1st. That the medicament is useful where giddiness, nervous weakness of sight and hearing, headache, and other symptoms of this kind are prominent; also in epilepsy, in which case it appears to possess peculiar medical properties; in chorea, and for the treatment of general nervous debility.

2nd. That oxide of zinc can be administered without the slightest fear of danger, and that the only inconvenient symptoms it may produce are sickness and constipation.

3rd. That the dose of this preparation may be increased gradually to from fifteen to thirty grains and upwards daily.

I continue to avail myself of every opportunity to test the medical properties of oxide of zinc, and trust it will be found useful by other members of the medical profession.—*Association Med. Journal, Nov.* 23, 1855, *p.* 1045.

16.—ON APOPLEXY IN RELATION TO CHRONIC RENAL DISEASE.

By W. Senhouse Kirkes, M.D., Assistant Physician to St. Bartholomew's Hospital.

[The occurrence of Apoplexy, Congestive or Sanguineous, in connexion with advanced disease of the kidneys, has often attracted the notice of pathologists.]

"An analysis of the fatal cases of apoplexy, which have fallen under my own observation, shows that in a large number the kidneys were extensively diseased. I have excluded from this analysis the cases of merely congestive apoplexy, for the same reason that induced me to omit those cases of apoplexy, with and without albuminuria, which have not died, or not been examined after death, namely, because without the visible evidence of extravasated blood within the cranium, it is just open to the objection that one or more of these cases might not be purely apoplectic. I have excluded, also, those cases in which the brain only has been examined after death, or in which but an imperfect inspection of other organs has been made, because with the object at present in view, it was advisable to make use of those cases only, in which a complete examination of all the important parts had been performed.

With these exclusions, I find I have notes of 22 fatal cases of sanguineous apoplexy, in which the thoracic and abdominal viscera, as well as the contents of the cranium, were more or less minutely examined after death. Of these 22 cases, the kidneys in no less than 14, presented unmistakable evidence of disorganization: and with

but few exceptions the disorganization amounted to the small, hard, shrunken, and granular condition so characteristic of advanced renal degeneration: the kidneys in the remainder of the 14 cases being generally large and soft, and greasy-looking. So large a proportionate number as 14 out of 22 seems clearly to indicate that the renal disease bears a very close relation to the apoplexy. In order to determine the nature of this assumed relation, however, the analysis of the cases must be pursued farther.

Of the 14 cases in which the kidneys were diseased, there was only one in which the heart was not enlarged. The enlargement in these 13 cases was principally, and often exclusively, confined to the left ventricle. In five there was no valvular disease whatever to explain the hypertrophy; in four there was slight thickening, probably not amounting to inefficiency, of the mitral or aortic valves; and in four only was there sufficient valvular disease to account for the enlargement of the heart. So that certainly in five, and probably in nine cases, the cause of the enlargement was remote from the heart, and might with probability, be referred to the co-existent disease of the kidneys. And, even in those cases in which the valves were extensively affected, the renal disease might be supposed to have contributed in some degree to the enlargement which the heart presented.

This part of the analysis, while it confirms the opinion almost generally entertained, that hypertrophy of the left ventricle of the heart is among the most common of the sequences and results of prolonged disease of the kidneys, would also seem to furnish us with the true interpretation of the connexion so obviously subsisting between advanced renal disease and apoplexy. For the researches of Dr. Burrows and others, have placed it beyond a doubt that disease of the heart, especially hypertrophy of the left ventricle, has a most direct relation to apoplexy, constituting indeed, in many cases, the immediate cause of the attack. And since hypertrophy of the left ventricle, independent of valvular disease is, as just shown, so apt to follow upon disease of the kidney, we seem to possess herein an intelligible explanation of the occurrence of apoplexy in connexion with renal disease; the hypertrophied heart being in such cases the medium through which the affection of the kidney manifests itself injuriously upon the cerebral circulation. In no other way, I think, can we readily understand how the renal disease should give rise to apoplexy. The impure condition of the blood, resulting from the detention of the excretory principles of urine is capable of explaining many of the complex and often serious nervous phenomena that are apt to occur in advanced disease of the kidney, but it cannot be supposed to explain, at least directly, the rupture of the small blood-vessels of the brain, and the consequent occurrence of sanguineous apoplexy.

A still further analysis of the 22 cases of sanguineous apoplexy, which form the basis of the present inquiry, will help to explain the mode in which hypertrophy of the heart, whether dependent on val-

vular or renal disease, or on the two conjoined, or on any other cause, may lead to the apoplectic attack. For of the 13 cases of associated cardiac and renal disease, there were 12 in which the coats of the cerebral arteries were more or less strikingly diseased, while they were diseased also in five other cases, in which the kidneys were healthy, and in three of these latter there was enlargement of the heart. So that of the 16 cases in which enlargement of the heart was associated with sanguineous apoplexy, no less than 15, that is all but one, presented disease of the cerebral arteries. Without bringing into this analysis any results of an examination into the frequency of disease of the cerebral vessels in conjunction with cardiac affection independent of apoplexy, the facts here given will suffice to show that disease of the vessels of the brain is even more closely associated with hypertrophy of the heart, than the latter is with disorganization of the kidney.

The intimate connexion thus apparently subsisting between sanguineous apoplexy on the one hand, and diseased cerebral vessels, enlarged heart, and renal disorganization, on the other, as deduced from the foregoing analysis, will, perhaps, be best apprehended by viewing the result of this analysis in a kind of tabular form. The 22 cases of sanguineous apoplexy may then stand thus :—

Cerebral Vessels.	Heart.	Kidneys.	
Diseased	Diseased	Diseased	12 times.
„	„	Healthy	3 „
Healthy	„	Diseased	1 „
„	Healthy	„	1 „
„	„	Healthy	2 „
„	Diseased	„	1 „
Diseased	Healthy	„	2 „
			22

From this it appears that

The Cerebral Vessels were diseased 17 times.
The Heart..... „ 17 „
The Kidneys ..... „ 14 „

It cannot but be evident from this impartial analysis of 22 fatal cases of sanguineous apoplexy in which the different organs were carefully examined, that disease of the kidneys, heart, and cerebral vessels stand in very close relation to the apoplexy ; and this relation is the more evident when it is borne in mind that in more than half of the cases, the kidneys, heart, and cerebral vessels, were found coincidently affected, while in only two cases was there absence of decided disease of any of these parts.

Such being the principal information yielded by an analysis of these cases, two questions seem naturally to be suggested by it : first, what relation do the renal, cardiac, and arterial diseases bear to each other ? secondly, what share do they severally take in the production of

apoplexy? As regards the relation subsisting between the renal, cardiac, and arterial disease in sanguineous apoplexy, I believe that the affection of the kidneys is the primary disease, and that the other lesions are developed secondarily, and in the order just indicated, viz., hypertrophy of the heart, disease of the cerebral arteries, and extravasation of blood from rupture of these diseased vessels. That structural disease of the kidneys, of such nature as to interfere permanently, or for long, with their functions, has among its most frequent and prominent accompaniments an hypertrophied condition of the left ventricle is, as already said, a fact now almost generally admitted by pathologists. Of the various explanations of this pathological fact, the most probable perhaps is that which regards the blood as so far altered from its normal constitution by retained principles of urinary excretion, as to move with less facility through the systemic capillaries, and thus to require increased pressure, and consequently increased muscular growth of the left ventricle, to effect its transmission. To this, perhaps, may be added, among other additional causes, the direct influence on the circulation, resulting from the impeded transit of blood through two such large and vascular organs as the kidneys, in consequence of the structural change which has taken place in them. On whatever cause, or set of causes, it may depend, however, hypertrophy of the left ventricle of the heart, in consequence of prolonged renal disease, may, I think, be regarded as a well-established fact: and to the affection of the kidneys, therefore, may be referred the enlargement of the heart found in nine of the 13 cases of associated cardiac and renal affections in the analysis above given, and part of the enlargement noticed in the four cases where the valves were considerably diseased.

The relation borne by the hypertrophied heart, in cases of renal degeneration, to disease of the cerebral vessels, and, through these, to sanguineous apoplexy, will require more detail in its consideration. It is obviously a very close relation, since, as already shown, the cerebral vessels were found diseased in 12 of the 14 apoplectic cases associated with cardiac and renal affection. In all the cases the disease consisted in the well-known yellowish-white thickening and deposit within the coats of the vessels. Into the nature of the deposited material it is unnecessary, for the present purpose, to inquire: suffice it to observe that, whether composed principally of fatty, earthy, or albuminous matter, it must probably be looked upon as resulting from a kind of degeneration of the natural textures of the arterial walls, and as indicating a weakened condition of those parts of the arteries where it occurs. It is, I think, generally believed that this affection of the coats of the cerebral, as also of other arteries, either consists of a primary and spontaneous degeneration, or is induced by, and indicative of, some general cachexia, which manifests itself, among other ways, in a tendency to a more or less wide-spread disease of the arterial system. If, however, any more direct explanation can be given of this disease of

the arterial coats, it is obviously better to adopt it than to rely on either of the above, which convey but little definite meaning. For, although very various morbid appearances may result from some one diseased state of the system, as from a common cause; yet, when any one of these admits of being reasonably referred to a direct and special agency, it should be removed at once from the category of effects resulting directly from one common origin. And, although it is, no doubt, true, that without any previous disease, but simply in consequence of interference with one or more of the general laws relating to its nutrition, any tissue may undergo a process of degeneration; yet, in the absence of all certain knowledge of any such primary impairment of nutrition, it is better to seek for an explanation of the degeneration in some circumstance which has been known to attend the degenerative process, and to be capable of producing it. In the case of the cerebral or other arteries, although it may be that in advanced life, the walls may sometimes degenerate from simple wearing-out, just as other tissues atrophy in old age; yet, when this disease occurs in comparatively early life, and is associated with cardiac mischief, we seem to possess, in the enlargement of the heart, an explanation of the affection more intelligible than that referring it to primary and spontaneous degeneration, or to the result of some general cachexia. Indeed, I think it may be held as highly probable, that the disease or degeneration in question is, in great measure, the result of the continual over-distension and straining to which the arteries are subjected by the unwonted energy with which an hypertrophied heart propels the blood along them. Stretched and weakened in their tissue by long-continued undue pressure, it would not be surprising that the arterial coats should undergo structural changes somewhat analogous to the softening and degeneration which other over-strained and excessively-exercised tissues not unfrequently suffer. It may be, that before degenerating, the coats undergo a kind of protective hypertrophy, to enable them to bear up against the increased pressure to which they are subjected, and that degeneration only ensues when this compensating overgrowth has attained its utmost limit; just as we find degeneration to be more common in hypertrophied than in ordinary muscular tissue, as, for example, in the heart. That such is sometimes the case, viz., that before degenerating, the walls of arteries exposed to undue pressure undergo hypertrophy, that is, an increase of natural texture and strength, seemed to be shown in the following instance:—A girl, aged 14, previously in apparent health, having spent a day of unusual pleasure and excitement, was seized with a fit in the evening, and left hemiplegic on the right side. The paralysis continued until the child died, four months afterwards. In the anterior lobe of the left cerebral hemisphere was an old hæmorrhagic clot; the brain was otherwise healthy, though the bloody points visible on section were unusually large. The middle cerebral arteries were gaping, instead of being collapsed as they usually are. The left ventricle of the heart

was hypertrophied to an enormous extent, the walls being firm and compact, and nearly six times as thick as those of the right ventricle. There was not a trace of valvular disease to account for this enormous hypertrophy. The coats of the aorta were remarkably thickened, the thickness consisting apparently in simple increase in the natural texture of the tunics, which were strongly elastic, smooth on the interior, and apparently quite free from morbid deposit. All other organs were healthy except the right kidney, which was atrophied and reduced to about a quarter the size of the left, which somewhat exceeded the ordinary dimensions. The gland did not seem diseased, but simply wasted. This case, while it showed increased growth of the aortic coats in conjunction with enlargement of the left ventricle, and thus favoured the view that hypertrophy of arterial walls may precede their degeneration when the latter is associated with enlargement of the heart, seemed to bear also very closely upon the general subject at present under consideration. For there was evidently a very close pathological connexion between the several morbid conditions found after death, namely, the apoplectic clot, the thickened coats of the aorta, the hypertrophied heart, and the wasted kidney. Why should sanguineous apoplexy occur in a subject so young? Why should the left ventricle be so enormously hypertrophied without any valvular disease to account for it? Why should the coats of the aorta be so greatly thickened without being evidently diseased? The answers to these questions suggested themselves at once. Something at an earlier period of the child's life had occurred to inflict irreparable damage on one kidney; the other had not grown with sufficient rapidity to supply its place; the elimination of urine had been imperfectly effected, and the elements of this excretion had therefore accumulated in the blood; the left ventricle of the heart had become hypertrophied in consequence of this continued impurity of the blood; to resist the increased pressure on their walls, resulting from the hypertrophied heart, the coats of the aorta, upon which vessel the first brunt of the excessive strain would fall, had gradually increased in strength and thickness; and thus for a time all had probably gone on well, under the circumstances: the walls of the ventricle and of the aorta growing in proportion to the increasing demand upon them; and so probably the child's life might have been prolonged for a considerable time, had not the heart's action been stimulated to an unusual degree by unaccustomed bodily and mental excitement, and the delicate vessels of the brain yielded to the excessive pressure to which they were in consequence subjected.

Numerous examples, less striking perhaps, than this, but equally illustrative of the same chain of pathological phenomena, are continually exhibited in the dead-house of a large hospital. I adduce the present case, chiefly to show that simple thickening—a natural hypertrophy without disease—may occasionally be found in arterial walls in connection with enlargement of the heart; and that, therefore, it may

be presumed that in many cases of arterial disease associated with cardiac enlargement, the walls of the diseased vessels were hypertrophied antecedent to their degeneration. Whether this be so or not, however, the fact remains, that degeneration of the coats of arteries is frequently found associated with hypertrophy of the heart.

That the degeneration in question is, in a great measure, the effect, and not merely the attendant, or, as some suppose, the cause, of the enlargement of the heart, was an opinion first distinctly enunciated, I believe, by Dr. Dittrich, in a clever essay, containing the results of his investigations into the diseased condition of the pulmonary artery. Generally, it is believed that the pulmonary artery and its branches are rarely affected with the degeneration of their coats, analogous to that so frequently observed in the branches of the aortic system. Dittrich, however, has clearly shown that (as formerly pointed out by Mr. Paget), this view is erroneous ; that disease of the coats of the smaller sub-divisions of the pulmonary artery is by no means uncommon ; and that, which is especially to the present purpose, the occurrence of this disease is almost invariably associated with those causes which impede the transit of blood through the lungs, and so lead to permanent distension of the pulmonary artery and its branches, and to consequent hypertrophy of the right ventricle. Of these causes, disease of the mitral valve, emphysema. and wasting of the tissue of the lung, are, singly or combined, the most frequent. The almost invariable occurrence of disease of the small pulmonary arteries in such cases, and the absence of the disease when no impediment to the pulmonary circulation exists, led Professor Dittrich to two important conclusions: first, that the circumscribed pulmonary apoplexy, so commonly found in such cases, results from the rupture of the dilated and diseased vessels, just as sanguineous apoplexy usually results from the giving way of diseased cerebral vessels ; and, secondly, that the degeneration of the coats of the vessels is the consequence of the previous over-distension to which the artery and its branches have been continually subjected, by the excessive force of the right ventricle, and the impeded transit of the blood through the lungs. Reasoning from what he found in the case of the pulmonary artery, Dittrich suggested that, most probably, the disease occurring so much more frequently in the coats of the general arterial system, is due to an analogous cause, viz., more or less continuous over-distension of the canals of the affected vessels. The frequent association of cardiac mischief, especially hypertrophy of the left ventricle, with general arterial disease, and the occurrence of the disease first, and principally, at those parts most exposed to the force of the moving blood, such as the early part and arch of the aorta, and the angles whence branches of the artery proceed, are among the principal arguments which he adduces in support of this opinion.

Assuming then as probable—and there seems abundant reason for so doing—that disease of arterial coats, especially when associated

with hypertrophied heart is, as suggested by Dittrich, the result of continual over-distension of the vessels, we can readily understand why the cerebral arteries should present this disease in so marked a degree, for, in addition to the directness of the channel through which they receive their blood from the heart, and their speedy subdivision, it is well known that they are unsupplied with the strong fibro-cellular sheath possessed by other arteries, and that their coats are, moreover, much thinner than those of arteries in general. For these reasons, therefore, it is natural to suppose that they will be especially liable to feel the force of an hypertrophied left ventricle, to be more or less continually over-distended thereby, and ultimately to have their coats diseased. Thus, weakened by both over-distension and disease, their rupture, and the consequent sanguineous apoplexy, are events which, especially under the influence of an hypertrophied heart, would seem to follow, almost as a matter of course.

The circumstances under which cardiac disease will perhaps be most likely to induce over-distension and degeneration of the coats of the small arteries, especially those of the brain, are those in which there is hypertrophy of the left ventricle without valvular disease—as when it results from renal disease—for then the full force of the hypertrophied ventricle will be exercised directly upon the arterial current. The frequent existence of more or less extensive disease of the coats of the aorta, as well as of the smaller arteries, in cases of associated renal disease and hypertrophied heart, is quite intelligible on this view, which refers the dilatation of the vessel, and the disease of its coats to the over-distension produced by the enlarged heart. The opinion that disease of the coats precedes the dilatation, and induces both it and the enlargement of the heart, has but few facts in its favour. For it is more difficult to believe that degeneration of arterial tunics is dependent on the same general cause that produced the structural change in the kidney, than that it results from the constant over-stretching to which the affected vessels have been subjected by an hypertrophied heart following upon the renal disease. Whatever gives rise to such continual over-distension of an artery, whether the undue force of the current of blood propelled by the heart, or obstruction to the distribution of the blood by disease in any large organ, may be supposed capable of producing degeneration in the arterial coats. In this way, perhaps, may be explained the thickened and dilated condition occasionally found in the renal artery in advanced disease of the kidney, for owing to the structural changes in the gland the transmission of blood through it will be impeded, and distension of the artery and its main branches consequently result.

If the views just stated be correct, we seem to have a satisfactory answer to the second question, suggested by the analysis of the fatal cases of apoplexy which form the basis of the present remarks, viz., what share do the renal cardiac and arterial disease severally take in the production of the apoplexy. Sanguineous apoplexy, when asso-

ciated with advanced renal disease, may, I believe, be generally found dependent on rupture of one or more of the cerebral vessels, which have been weakened by structural changes in their coats; and it may, I think, be held that these changes in the coats are principally induced by continued over-distension of the vessels, resulting from an hypertrophied state of the left ventricle, so commonly found in such cases; and lastly, that this enlargement of the left side of the heart when independent, as it often is, of valvular lesion, is the direct result of the renal disease. So that a primary structural lesion of the kidney may, in this manner, through the medium of the heart and cerebral vessels, which are secondarily affected, ultimately result in an attack of sanguineous apoplexy, which but for such renal disease might never have occurred.

As previously remarked, I have omitted from this investigation all mention of fatal cases of mere congestive apoplexy, also all cases of hemiplegia associated with albuminuria, although it is probable that many of these might, like the cases of sanguineous apoplexy associated with renal disease, be primarily referred to the affection of the kidneys. In all cases, therefore, of apoplexy or hemiplegia, it is advisable to test the urine for albumen, for beyond the direct information thus afforded of the probable state of the kidneys, an albuminous condition of this secretion may serve to explain, in the absence of any valvular disease, the hypertrophied heart which so frequently co-exists with the apoplexy.—*Med. Times and Gazette, Nov.* 24, 1855, *p.* 515.

17.—ON CHRONIC INTERNAL HYDROCEPHALUS TREATED BY INJECTION OF IODINE.

By Dr. J. M. Winn, Senior Physician to the Metropolitan Dispensary, &c.

[The majority of writers on chronic hydrocephalus, among whom we may mention Dr. West, Dr. Battersby of Dublin, and Mr. Dendy, admit the inefficacy of paracentesis cerebri, with or without compression, on the assumption that congenital dropsy of the brain is invariably an incurable disease.]

Fully impressed with the inefficacy of the remedies hitherto employed in this melancholy disease, I determined, on meeting with a suitable case for the operation, to try the effects of injecting a weak solution of iodine into the brain, after evacuating the contents of the ventricles by means of a trocar. Through the kindness of Mr. Borlase Childs, I have recently had an opportunity of performing the experiment. The patient he sent to me was a little girl, fifteen months old, who was afflicted with one of the most enormously distended heads from dropsical effusion I had ever witnessed. Although the child's mother attributed the disease to a fall that it had sustained five weeks after birth, and which was followed by convulsions, she admits that the

infant had a peculiar expression of the eyes, and was subject to startings of the limbs soon after it was born. I have therefore no doubt that the disease was congenital. The fall probably accelerated the effusion, as the head began to enlarge rapidly after the accident; its dimensions had gradually increased up to the day when I operated, at which time it measured twenty-four inches and a half in circumference. The bones of the head had acquired considerable thickness, and were united at the lambdoidal suture, and partly so at the inferior portions of the coronal suture. The anterior fontanelle measured about four inches in each direction. The child had an anæmial appearance, the natural consequence of having been confined in one of the closest and dirtiest courts in Spitalfields; in other respects it was tolerably healthy, and its bodily functions were duly and properly performed. Its perceptions and memory were fairly developed.

On the 3rd of October, with the concurrence and assistance of Mr. Childs, I tapped the head, and after evacuating seventy-two ounces of a straw-coloured serum, two ounces of a solution of tincture of iodine (fourteen minims to two ounces), previously raised to the temperature of the body, were slowly injected into the brain, where it was allowed to remain. A hydrocele-trocar was used, and the head punctured in the coronal suture, about two inches below the lower angle of the anterior fontanelle. Although compression of the cranium was maintained during the time the fluid was escaping, it was impossible, owing to the strength and resiliency of the cranial bones to prevent a quantity of air from entering the skull. After the operation the head was firmly bandaged, a pad having been previously placed over the superior fontanelle, in consequence of its having become much depressed during the evacuation of the fluid. The child bore the operation well, and did not appear to suffer much pain.

Oct. 4th. Lies in a tranquil and comatose state; convulsed occasionally during the night; skull tympanitic; bowels and kidneys have not acted; skin warm; took the breast once: has also swallowed half a cupful of arrowroot, flavoured with port wine. I ordered calomel, two grains, to be taken immediately.

5th. Bowels have acted freely; conjunctivæ suffused, and discharging abundance of mucus; pupils sensible to light. It has unfortunately happened that the mother's sister committed suicide in the course of the night; and in consequence of the shock which her nervous system sustained on hearing of her relation's death, I deemed it advisable to order the child to be kept from the breast during the next twelve hours. I prescribed milk and beef-tea.

6th. The child sucks freely, and looks better; eyes less suffused. The head, although still tympanitic, has become so far reduced in size that I found it necessary to tighten the bandage. Bowels open.

7th. Not so well; surface cold; legs rigidly extended; refuses the breast, but swallows whatever is placed in its mouth; eyes have become more suffused. To take chlorate of potass, two grains and a half, every four hours.

8th. Has rallied from the partial collapse of yesterday; skin warm; took the breast once; takes a sufficiency of nourishment; muscular rigidity has subsided; bowels confined; urine scanty. There is not the slightest sign of a return of the dropsical effusion. To take a calomel purge, and to repeat the chlorate of potass mixture.

9th. Sucked once only; muscular tremors of the right arm; has passed one copious and dark-coloured motion. To take mercury with chalk, one grain, every six hours, and sesquicarbonate of ammonia, one grain, every four hours; to omit the chlorate of potash.

10th. No material change; has taken a considerable quantity of beef-tea and milk; bowels confined. Ordered to take castor-oil, and to continue the mercury with chalk every eight hours.

11th. Has lost ground again; feet spasmodically adducted; bowels freely opened by the oil; takes food less freely. On removing the bandages from the head, it was found that the protuberances of the frontal bone were slightly inflamed and ulcerated to a small extent on the right side. After bathing the head, the roller was carefully readjusted.

12th. Some slight improvement; appeared to recognize her brother for the first time; takes food more freely; eyeballs spasmodically depressed.

13th. Gradually sank, and died at half-past six a.m.

Being exceedingly anxious to obtain an examination of the head, I called on the parents the following day, and, to my annoyance, found them violently opposed to an inspection of the body. It was not until after half an hour's earnest talking that I succeeded in obtaining their consent, and then only on condition that I was not to use either a saw or hammer.

Autopsy, twenty-seven hours after death.—Owing to the strength and partial ossification of the bones, and to my being restricted to the use of a knife, the sphere of observation was greatly limited. I succeeded, however, in determining the following interesting facts:—The head had not enlarged in the slightest degree since the operation. The cavity of the arachnoid contained a large quantity of inodorous gas, and about six ounces of serum. The arachnoid itself was quite healthy. The brain which was lying collapsed at the base of the skull, was much more vascular than natural, but its consistence was normal. The marks of the convolutions were quite distinct. The lateral ventricles were empty, and enormously dilated; their lining membrane was thickened, but smooth. On one side a small pellucid cyst, the size of a grape, was attached to the inner wall of the lateral ventricle by a small vascular pedicle. The cerebellum, the cerebral nerves, and other structures at the base of the brain were in a natural condition. No fluid was discovered in the spinal canal. The opening made by the trocar through the right lateral ventricle had evidently become wider since the operation; the edges of the aperture, nevertheless, presented a smooth and healthy appearance.

Remarks.—Although the above case was only partially successful, it has been the means of eliciting some important facts, which may serve to guide us in the future treatment of a melancholy and intractable disease. It has shown that iodine may be injected into the brain without causing any poisonous effects, and that its strength may be so regulated as to produce an amount of stimulation sufficient to restore the balance between the secreting and absorbing functions, without causing destructive inflammation of the cerebral tissues.

In the first case, in which I merely tapped the brain, without employing an injection, the water began to re-accumulate in the head on the third day; whereas in the latter instance, where iodine was injected, there was no perceptible increase of fluid on the tenth day after the operation. The small quantity of fluid found in the head after death was most probably part of the original serum contained in the brain before the operation, as I had purposely refrained from evacuating every portion of the serum.

Congenital hydrops cerebri is essentially a non-inflammatory disease, and the fear of exciting inflammation in these cases has led to the neglect of efficient measures. The brain is in a debilitated condition, and requires careful stimulation.

The details of the case which I have narrated prove that the shock of a severe operation on the brain is not necessarily fatal. The little patient recovered from the shock, and the principal functions of the body were restored. Had the child resided in a healthy locality, and possessed more stamina, the results of the case would probably have been more encouraging.—*Lancet, Nov.* 3, 1855, *p.* 408.

18.—*Treatment of Chorea by Blisters.*—Dr. Max Simon, several years ago, called the attention of physicians to the treatment of chorea by blistering. Since then, in a sanitary official report, M. Vandesleben has recounted three cases of prompt and permanent cure by the employment of blisters applied upon the arm and neck. Dr. Jensis has also published cases of a cure obtained by the same means, and remarkable from the fact, that the convulsive movements first ceased in the limb where the blister was placed, and finally gave way before blisters placed upon the other limbs and on the neck. M. Delaharpe, physician in Louisberg, has, in his turn, published four favourable observations of this mode of treatment, and makes the following remarks upon the subject:—"Chorea being almost always more intense upon one side than on the other, he chose the inferior extremity of the most affected side for making the first application; in the legs the blister was placed below the head of the fibula, and in the arm below the insertion of the deltoid—it was left on until the blister was raised. The first dressing produced ordinarily an increase of the choreic convulsions; but this did not continue, and upon the second or third day after the application the disordered movements

were much mitigated, not only in the limb where the blister was applied, but in the others also. As soon as the first blister has ceased to suppurate another is applied—its curative effect is more marked than the first, for often all the spasms have ceased in seven or eight days of this treatment. When the chorea is intense, and of long standing, a third blister will be required; it should be placed upon the neck. This last application is above all necessary if the head be much affected. At the end of six or seven days the cure is in general completed—the chorea has disappeared; but in order to avoid a relapse it will be necessary to have recourse to general treatment." M. Delaharpe remarks, that in the cases of thin weakly children the action of the blisters is most beneficial. In the cases of stout, strong children, which, however, are rare, success is less certain. When the spasmodic movements have disappeared, cod liver oil, quinine, and iron are to be administered, according to the indications.—*Dublin Hospital Gazette, Dec.* 1, 1855, *p.* 335.

DISEASES OF THE ORGANS OF CIRCULATION.

19.—ON THE HEMORRHAGIC DIATHESIS.

By Dr. Hyde Salter, Assistant Physician to Charing Cross Hospital School, and Assistant Physician to the Hospital.

[In order to obtain correct physiological views of this subject, we must inquire,—What is the anatomical condition of hemorrhage? We may define it to be the rupture, or rather a solution of the integrity of the wall of a sanguiniferous vessel. The general opinion is, that blood may escape from its vessels by *rupture* and by *exhalation*. Dr. Watson says, "There seems no more necessity under the action of disease for a rupture of vessels to give exit to the blood, than to give exit to mucus, serum, or sweat;" but he can not tell us how this takes place: indeed, we know, that it is impossible, physically impossible, for blood to escape from capillary vessels without their rupture. In the first place, they have no natural apertures through which any solid particles can escape; and, in the second place, blood-globules are cells of definite shape and size, incapable of transuding an imperforate membrane, or of solution, except by their destruction. The escape of serum through the vessels is a different thing. The exhaled material here is entirely fluid, and the process is physical; whereas the escape of blood-globules is mechanical. Instead of accepting the exhalation theory of hemorrhage, we believe that the immediate pathological condition on which it depends to be a morbid friability of the capillary walls, so that they rupture under the slightest force: it is, therefore, a textural disease of the capillaries.]

What makes the capillary membrane unduly friable? It must be some vice in its nutrition, whereby it loses some of its normal physical

properties—its toughness, and power of resistance. And on what does this vice of nutrition depend? Here we are met by two possible explanations:—one, that it depends on a quantitative or qualitative deficiency in the blood of that particular plastic material on which the capillaries draw for their nutrition; the other, that the blood being in no way divergent from the normal standard, the deficiency resides in the capillaries themselves, that their nutritional affinities are debased, their plastic power depressed, and that thus they fail to form from the healthy material presented to them for their recrement the proper quantity or proper quality of tissue. Of these two theories, the first is the one I am disposed to adopt: it seems to me the most simple, the most plausible, and the most probable. All *diathetic* textural degenerations with which I am acquainted are blood diseases—primarily humoral. We may, probably, never detect what this specific peculiarity of the blood is, any more than we may in *struma* or *cancer*; but it is not the less theoretically probable. If, then, I were asked, what is the essence of the *hemorrhagic diathesis*, I should say, that it consists in a vice of assimilation issuing in a special spanæmia, the blood being poor in that particular material from which the capillaries—perhaps homogeneous membranes generally—derive their nutriment. We know that the relations between the blood and tissues are infinitely subtle, and delicate, and complex, and there seems to me nothing far-fetched or imaginative in such a theory.

The view that the disease consists essentially in depressed assimilative power, is confirmed by the circumstances that produce and aggravate it: deficient or bad food, overwork, cold, damp, and darkness, irregularity of life, and exhausting excesses, are its most fruitful causes; and old age, the time of life characterized especially for failure of the assimilative powers, is the time in which it is most pronounced—indeed a special form of it, known as *purpura senilis*, has received its name from this very circumstance. That the spanæmia is *special* not *general*, that the blood is poor in some particular material, and that it is not a general poverty, we are sure, because we know that, even in extreme cases, the general nutrition may be unimpaired, all the other tissues well nourished, and because we see that there are only certain people in whom the disease can occur; that in some any source of depression will bring it on at once, while in others you may have starvation, exhaustion, and depletion, almost to death, and a condition of the extremest general blood poverty induced, (as for instance after protracted illness, or in women by flooding), and yet not the slightest disposition to capillary hemorrhage.

[We will now very briefly mention the case of a woman, aged 50, lately under treatment. When first seen as an out patient, there was a general bruised and speckled condition of the surface, she had no hemorrhage from other parts, and had been in this state for about three months; shortly after this time her gums began to bleed, and

although it stopped in a few days it began again and continued to increase until she spit about two quarts daily; she was getting very weak and faint in consequence. When first seen, she was ordered sulphuric acid and iron; but when the bleeding from the gums came on, she was ordered an alum lotion, and a mixture of alum, sulphuric acid, and decoction of bark; as the bleeding still continued she was advised to come into the hospital.]

Let us now, assuming as granted the pathology of the disease as I have above enunciated it to you—that it is a special spanæmia or blood dyscrasis, issuing in the deterioration and debasement of a special tissue—inquire what our treatment ought to be. It should in my opinion, involve these three things :—

1. The supply of an abundant and generous diet, rich especially in those alimentary principles which are plastic or tissue-forming; that is, those belonging to the albuminous group.

2. The administration of such medicines as increase and invigorate the powers of assimilation, and, therefore, of healthy sanguification, either through the nervous system, or by appealing immediately to the organs of digestion; such are tonics.

3. The arrest and prevention of hemorrhage, by using all available means of stopping bleeding, and by the exhibition of local and general anti-hemorrhagics.

The last is the treatment of symptoms; the first two, of the absolute pathological condition; the last is directed to the arrest of a drain, by the continuance of which, and the consequent impoverishment of the blood, the disease becomes self-supporting, and by which, in fatal cases, it ultimately exhausts the patient; the first two, to the production of a fabric of good quality by the supply of a good and abundant raw material, and by increasing the efficiency and working power of the fabricating machine. Two elements of this threefold treatment—the first and the last—are absolutely necessary. Unless the standard of the food is kept up the blood must suffer; we see how efficient a debased food alone is in producing capillary hemorrhage, in the allied disease of *scurvy;* and unless the drain of the hemorrhage is stopped the blood cannot recover itself, for its most precious elements thus draughted away are replaced principally by water, and are themselves slow of recrement; to give food and medicine without stopping the bleeding, is, to use an expressive vulgarism, like "saving at the tap and letting out at the bung-hole."

It was with these principles in view that I treated the case, and its subsequent history is told in a few words :—

When she came in, which was on October 16, I ordered her to take, three times a-day, the following draught—Acid. gallic. gr. v., acid. sulph. dil. ℥xx., dec. cinchon. ℥iss. I put her on full diet, and gave her, in addition, a mutton chop, two or three eggs, and a free supply of milk daily.

The report of the 18th is:—Not so well; the bleeding from the mouth profuse; the teeth clogged and clotted; several handkerchiefs saturated; one large ecchymosis on the tongue, black in colour, and covered only by the epithelium, as big as a sparrow's egg, and several smaller ones—the smaller ones seem to have their seat in the fungiform papillæ. She was ordered, for neuralgic pain in the course of the sciatic nerve of the right leg, a liniment, of equal parts of lin. opii and lin. camph., to be rubbed in night and morning.

19. The mouth still bleeding freely, the patient very much exhausted, flushed face, feverish, and restless. Ordered—Ol. terebinth., to be freely applied to the mouth three times a-day, with a sponge.

22. The turpentine has completely stopped the hemorrhage from the mouth. A large ecchymosis formed during the night, as big as an egg, in the loose areolar tissue beneath the left tendo-Achillis, from which she lost half-a-pint of blood. The spots of both kinds are scattered as thickly over the body as ever, covering the entire surface with patches and specks of all colours. Very little sleep: pulse weak and rapid. Ordered—Acid. sulph. dil. ℥xx.; ferri sulph. gr. iv.; magnes. sulph. ℥ss.; inf. calumb. ℥iss.; to be taken three times a-day. The liniment to be continued, and the following pill to be taken every night, to secure some sleep—Morph. hydrochlor. gr. $\frac{1}{3}$, extr. lactuc. gr. iv.

[After this time she slowly improved. The spots began to fade, and no fresh ones appeared, her appetite was good, bleeding ceased, skin was clear, and she soon left the hospital cured.]

I think she owes her great improvement to her high living and the tonic medicine, especially the iron; you will observe, that it was within two days after commencing to take 12 grains of sulphate of iron a-day she began to improve. She has taken that ever since, and she must continue to do so. She attributes, herself, the cessation of the hemorrhage to taking black-currant jelly; but my own opinion is that it had nothing to do with it, but that she happened to take some when the iron was beginning to tell upon her. On leaving she will have to take great care, and to continue the same diet and medicine, in order to avoid relapsing into her former condition. I do not consider her *cured*. I do not think such a case admits of cure, in the strict sense of the word; it will be liable at any time to recur, and any source of depression may reinduce it; but it is, for the present at any rate, most efficiently controlled.

On watching the gradual disappearance of petechiæ and vibices under the administration of such medicines as mineral acids and iron, the question naturally suggests itself to one's mind: How do these medicines act as anti-hemorrhagics in such a case as this; how do they check capillary hemorrhage? Do they act merely as tonics and favour the production of a less friable capillary wall by improving assimilative power, or as general styptics also? I believe the former and not the

latter. I believe the circumstances of the case render it impossible that they can act as styptics? We know that great dilution destroys styptic action; that acids no longer act as styptics when neutralized by alkalies. I think it, therefore, impossible that the anti-hemorrhagic action of such a medicine as sulphuric acid for instance, introduced in doses of a few drops in a dilute condition into from 20 to 30 pounds of blood containing carbonate and tribasic phosphate of soda, and permanently alkaline, can have anything styptic in its *modus operandi*. Iron has clearly the additional advantage of supplying an essential material.

Let me now, in conclusion, just briefly recapitulate the points that I would particularly press on the attention.

1. That the disease is a disease of nutrition,—a special error in assimilation, resulting in a special structural lesion; that, although there are some forms of it that would make one think that it depended on some special vice of nutrition in the minute sanguiferous vessels themselves, as, for example, where it occurs in florid, well-nourished, and otherwise healthy subjects, yet that there are other considerations that tend to throw back the starting-point of the mischief to an earlier stage of the process of assimilation, and to imply that it takes its origin in an imperfect sanguification. That the specialty of the nutritional vice, and its restricted locality, in no way contravene the view that throws so far back, and on the general medium of nutrition, the origin of the textural degeneration; for we know that, even in health, the relations between special local nutritions and special blood elements are infinitely complex and infinitely delicate, while in disease there seems no limit to the specific structural derangements dependent on specific pathological conditions of the blood,—witness skin diseases. The circumstances that induce us to throw on primary assimilation the onus of the mischief, are:—

a. That the causes that aggravate the disease are those that impair sanguification.

b. That the evidence associating the hemorrhagic tendency with a condition of blood below par seems indisputable.

c. That the diathetic cachexies with which it is associated are those depending on specific primary mal-assimilation, *e.g.*, rheumatism.

(With regard to the physical condition of the blood associated with the hemorrhagic tendency, we must not forget that the hemorrhage itself gives rise to a condition of blood below par, and thus that its watery condition may hold the place of a result, and not a cause.)

2. That the pathological condition is anatomical, and the special morbid anatomy, *ruptured capillary*.

3. That it cannot be explained by a mere qualitative derangement of the blood, an imperfect coagulation, or anything of that sort, as no change of the blood's qualities can explain the transit of blood cells through healthy capillary wall.

4. That the disease is eminently diathetic, the symptoms that show it being,

a. Length of time—the symptoms being sometimes manifest throughout the entire life of the individual.

b. Inheritance—a circumstance invariably involving diathesis.

c. Association with other diathetic conditions, as complexion, and diseases of undisputed diathetic character, *e.g.*, rheumatism.

5. That, however, as shown by the second case I have narrated, the diathesis may either be latent through a long life, and developed by external agencies, a fact not at all inconsistent with its diathetic nature—witness struma, gout, rheumatism; or, secondly, that it may be acquired late in life; or, thirdly, that sources of depression and exhaustion may give rise to idiopathic hemorrhage of exactly similar character, without any diathetic hemorrhagic tendency.

6. That any source of depression will aggravate or induce it—witness the frequency of purpura among the London poor of the worst kind.

7. That it increases with age, age probably acting as a depressant.

8. That it is a disease for which we possess no specific; that all we can do is to arrest blood-loss, and to supply the conditions of healthy assimilation by an abundant and generous diet and the administration of tonics; that the most valuable of these is iron.—*Med Times and Gazette, March* 15, 1856, *p.* 253.

20.—CASE OF HÆMORRHAGIC DIATHESIS.

By Dr. John R. Miller.

[To stand by a patient hour after hour, and see his blood slowly but surely draining away, while you have vainly had recourse to every expedient likely to be of any use, is a position of no common difficulty and anxiety. The following is a case of spontaneous hemorrhage, in which the bleeding from the gum was only arrested by the extraction of the tooth in its immediate vicinity.]

The patient, a gentleman of middle age, of a pale, anæmic habit, has been subject, from his earliest years, to occasional violent bleedings, which have been arrested always with great difficulty. In his boyhood, it took the form of epistaxis; in later years that of the hemorrhoidal flux. His life, at one time, was considerably endangered, owing to uncontrollable hemorrhage, resulting from a few leech-bites; at another, from the removal of a tooth; and so alarming were the consequences of this latter operation, that he was solemnly cautioned by the medical men in attendance, that on no account must be ever consent to have another extracted.

On the 25th of July last, while residing in the country, after a greater amount of exertion than usual, he commenced, at 11 p.m. to spit blood; and upon examination it was found to proceed from around the neck of the first lower molar on the right side.

The tooth was very loose, owing to absorption of the alveolar process, and the free edge of the gum embracing the tooth, showed an

ash-coloured line of ulceration, from which the blood was seen to issue. The gums were in a very relaxed condition, but did not present the smallest scorbutic appearance.

At first astringent lotions of myrrh, alum, catechu, were employed; then the part was touched with the tincture of the muriate of iron, and a purgative of compound powder of jalap was administered, followed by small doses of sulphuric acid; after which the acetate of lead and opium pill was had recourse to.

In seven hours from its commencement the bleeding stopped, but broke out again at 1 p.m. (26th). Similar measures were again employed, but without success; and the bleeding, which was considerable, having now continued for other five hours, the patient was seen by Dr. Brown, of Melrose, who, of course, at once recommended the extraction of the tooth; but, on learning the hemorrhagic constitution of the patient, he agreed with me that this plan could not be thought of.

Having found gallic acid of great service in cases of passive hemorrhage, he thought it might be tried here with advantage. He also touched the part with creosote, and failing good effects from this, recommended the mouth to be washed with tinc. of mur. of iron, largely diluted.

The creosote produced no beneficial results; the bleeding continued unchecked for eight hours more, when a temporary cessation occurred (2 A.M.); but only to be renewed at 1 P.M. of the same day. We now tried ice externally, by means of a bladder, and the nourishment—which was chiefly strong beef tea—was given cold. Iron internally was added to the other remedies. But the hemorrhage was in no way influenced for the next fifteen hours, when it suddenly ceased on the 28th, 4 A.M.

Matters were now assuming a very serious aspect. As near as we could calculate—making due allowance for the admixture of saliva and different lotions he was using—the patient had already lost at the rate of about ʒj. of blood for every three minutes during which the bleeding had lasted, and that, for the thirty-five hours of actual hemorrhage since the night of the 25th, gave between five and six pounds of blood. It was not, however, consequent upon the amount of blood lost, that grounds for immediate anxiety existed; for, although he was very weak and exhausted, which the want of sleep and proper nourishment had increased, yet the pulse indicated nothing hemorrhagic, but was of moderate fulness, slow, easily compressible. Could we have assured ourselves of no further hemorrhage, a few days would have sufficed to restore the patient; but, with the experience we had already had, we held no guarantee that the blood might not at any moment burst out afresh; and we could not but feel how impotent the measures hitherto employed had been, and that nothing further we could suggest gave promise of better success in the event of its recurrence.

Under these circumstances, therefore, it was considered desirable to call in further advice.

Dr. Begbie and Mr. Nasmyth, who now saw the case, recommended *pressure* with dry lint should the bleeding return, and in the meantime to continue the internal use of the iron. At this stage the gum and neighbouring parts were a good deal swollen and blackened by the tinct. of iron and creosote; coagula were also adherent; the mouth was opened with difficulty, and a satisfactory examination was scarcely now possible, as much from the risk of again inducing hemorrhage as from the confused state of the parts.

On the evening of the 30th, at 7 P.M., when the sloughs were becoming detached, and the mouth assuming more its natural appearance, blood was again suddenly poured forth. Owing to the second molar being in its place, it could not be clearly made out whether the ulceration, which was visible around the sides and anterior portion of the first molar, extended likewise to the portion of gum lying between. It was probable that it did ; at this point, however, pressure was inapplicable. Indeed, consequent upon the extreme mobility of the tooth, and the existence of ulceration—a condition of itself, under ordinary circumstances, unfavourable to the employment of pressure as a means of arresting hemorrhage—it became a matter of extreme difficulty, as well as uncertainty, the application of pressure at all. It was necessary to employ, not only pressure, but counter-pressure, so as to keep the tooth as steady as possible. The forefinger and thumb applied over a roll of lint, close up round the neck of the tooth, seemed the method best calculated for fulfilling the object in view; but the least movement on the part of the patient, or unsteadiness of the operator, must at once displace the relative position of the compress and bleeding surface. And so it proved. The lint became frequently soaked with blood, and had to be renewed; but at last, towards morning, the bleeding appeared to be under control, and at 6 A.M. of the 31st it ceased altogether, the lint remaining *in situ*.

Hopes were now entertained that the hemorrhage was at length combated; but these were soon doomed to be disappointed, for at 11 P.M. the same evening it recommenced as profusely as ever; and although fresh compresses were re-adjusted again and again, and the pressure sedulously maintained, it not only produced no effect in checking the flow, but seemed even to increase it. It was, therefore, laid aside, and the former measures resorted to. The bleeding, after having lasted nine hours, ceased, as on previous occasions, spontaneously.

It was now evident that the patient could not sustain, for many days longer, such a continuous drain on his system. It was like a man living on his capital, with no prospect of further supply sufficient to meet his daily expenditure. It resolved itself, therefore, into a question of *time*. How long could the patient live while no blood, at least none of a proper quality, was being formed to replace that being daily lost? The patient must sooner or later die of *anæmia*. Other un-

favourable symptoms, likewise, were now manifesting themselves. He showed a distaste to all kinds of nourishment; his pulse, though slow, was small, very compressible, and frequently intermitted. He was unable to sleep, and was becoming restless and feverish, for which opiates had been tried, but were found inadmissible.

On considering all the circumstances of the case, it was now proposed by Mr. Nasmyth, that if the bleeding returned, the tooth should be removed. This was in the face of the known tendency of the patient, and especially contrary to the warning he had on a former occasion received against *extraction* in particular. But it was now obvious that neither pressure, styptics, local applications, nor internal remedies, were of the slightest avail. The tooth out of the way, pressure could then be more directly applied to the bleeding points, and with some probability of success. The contraction of the gum, likewise, would of itself do some good. At all events, matters could scarcely well be worse than they were at present. An opportunity soon presented itself for putting it into practice.

On the morning of the 3rd August, the hemorrhage re-appeared as before; the tooth was extracted with the forceps with little difficulty, and the gum lightly compressed. Only the usual amount of bleeding followed, and our astonishment was only equalled by our satisfaction, to find that in a short time it ceased entirely. A recurrence took place after a few hours, but under the use of pressure with the finger, and diluted tincture of matico, the amount was not very considerable.

This was the last of it.

And now, naturally enough, my first feeling was one of unqualified regret that this plan had not been adopted at the outset; and there may not be wanting some who may be disposed to censure me for indecision and an error in judgment, for having relinquished this course out of preference to the other. But, it may be well to consider, how easy a matter it is for one who has been forced to make a leap in the dark, and suddenly finds himself on the other side sound and well, to ridicule the hesitation and fears of another who knows not the extent and danger of the gulf yawning at his feet. It would, assuredly, have been a proceeding open to the imputation of unpardonable rashness, had I—with the recorded cases of a fatal termination following the extraction of teeth, in not a few instances, where, as in the present one, the hemorrhagic constitution prevailed—at once removed this patient's tooth, before having made trial of every other measure which seemed likely to promise relief.

The sequel of the case, I think, shows that the tooth was the exciting cause of the hemorrhage, and had it been allowed to remain in, the patient must at length have sunk from loss of blood. The appearance of the tooth, one fang of which was roughened and darker than the other, indicated an inflammatory action of the socket, and the portion of the fang which was dead, acted like a foreign body, and kept up the irritation. The danger here, therefore, arose from the

presence of the tooth, a feature which removes this case entirely from comparison with others, where danger has only commenced *subsequent* to extraction; and were we to lose sight of the antecedents of our patient, we might be led into the error of considering it not one of hemorrhagic diathesis at all, but merely an illustration of great local disturbance of the capillaries of a particular spot.—*Edinburgh Med. Journal, Jan.* 1856, *p.* 638.

21.—ON SOME POINTS CONNECTED WITH CARDIAC PATHOLOGY.

By Dr. W. Hughes Willshire, Assistant Physician to the Charing-Cross Hospital, &c.

[The following case will bear upon some points only but recently investigated, and which are essential elements in the neo-pathology, or "young medicine," of our time. The patient was a married man, aged 28. He states, that about two months before admission he was under treatment for lumbago and gravel; this improved, but the pain extended down one leg, which he dragged when walking; he had frequent and intense pain in the head, with other symptoms of febrile excitement; his mind wandered, and in a few days he lost the use of the right side, for which he was salivated and blistered.]

On admission, hemiplegia of the right side existed: the tongue, when protruded, curved markedly towards the right side of the face. The latter was slightly distorted when the patient was made to smile, but there was no ptosis. The countenance seemed somewhat heavy; the pupils were natural, but the tongue was coated with a dark fur, and was, if not actually dry, certainly deficient in moisture. It was impossible to understand what he intended by his replies to any questions put to him.

When we saw him the next day to his admission, we found him in this same condition; and we also observed, that though he appeared to understand all that was said to him, he answered "*No*" to everything, whatever it might be. We made him over and over again contradict himself, as an *experimentum crucis;* and from this, coupled with the fact that he put out his tongue when told, pulled up his shirt, took a pencil in his left hand when we told him to try and write, and then put it in his mouth, to write with it in that position, we assumed he could not help saying "*No*" to whatever we asked him, though he must have been aware it was often the wrong answer to give. The bowels were rather confined, and the motions were passed without control. Of his scrawls with the pencil we could make nothing, and, up to the present time, we have been unable to glean any further history of the case than that resulting from our observation.

Now, here was a case of simple hemiplegia, but it occurred, as I remarked to you at the bed-side, much earlier in life than it usually

does; and moreover, the paralysis had not been preceded by any apoplectic fit, or coma, or loss of consciousness, so far as we could make out, though it was not improbable it might be sooner or later followed by such an event, if more blood should be extravasated. Though the skin was moist, the state of the tongue showed that the system was still suffering from what we may term the primary or acute irritation of the supposed hemorrhagic effusion. We put a blister behind the patient's neck, gave him the nitrate of potash in scruple doses, and some cathartic mixture. I did not perceive there were any indications for anything further. Indeed, the man has been under the same method of treatment until the present, and you will perceive how much he has improved. His tongue is quite clean, his appetite has returned, he can, with assistance, use the night-chair, instead of having involuntary defecations, and he attracts our attention occasionally by getting out the paralysed arm from beneath the bedclothes, to show it, as if it were improving. It appears, however, to be like a dead weight to him, as does, also, his right leg, poor fellow. Now, what I want to direct your attention particularly to is this: I was remarking at the bedside upon the propriety of endeavouring to find out, if we could, what might have been the cause of the disturbance to the cerebral circulation, or what gave rise to the assumed hemorrhagic extravasation. Amongst other points, I told you that in modern times disease of the heart, particularly hypertrophy of the walls of the left ventricular chamber, had been regarded as a frequent cause of apoplexy and its consequent paralysis. How it operated, or even whether a chain of causation and effect between the two had been fairly established or not, I did not then, nor shall I now, stop to inquire. I passed on to tell you, however, that for some time past investigations had been prosecuted at one of our large hospitals, and which went to show that obstruction of a main cerebral artery might take place from the lodgment in it of a plug of fibrine, which plug had been detached from some of the valves on the left side of the heart, where it originally grew in the form of a warty growth or excrescence. The result of this plugging would be, in perhaps the majority of cases, to pervert the healthy nutrition of the part, the result of which, again, might be the occurrence of ramollissement, or softening of the brain, and thus the sequence of paralysis consequently followed. I said we would therefore examine the heart in this case, and find out whether the valves betrayed evidence of lesional disturbance. You will recollect that no sooner had I applied the stethoscope to the precordial region than I stated that a loud sawing soufflet was plainly audible over most parts of it. Several of you had at the same time the opportunity of corroborating my statement. We found the heart's shock not stronger than natural, but diffused over a somewhat wider area than normal; from a little to the right of the nipple towards the apex of the heart, the first sound, and part of the second, were so covered by either the rough blowing or aspirated sawing sound, according to which term you

choose to bestow upon it, that the two normal sounds of the heart could scarcely be divided from each other. At the base, the first and second sounds were distinctly separated from each other, the former being accompanied by a sawing soufflet, and which slightly invaded the first part of the second normal sound too. Where the abnormal bruit had its seat of chief intensity, whether at the base or at the apex, we were not at all agreed. I have been undecided since, when I have examined the patient, but now I should be inclined to say, it culminates, as it were, midway between base and apex. It is heard distinctly behind, near the edge of the scapula, and it is also heard in the carotid arteries. Without wishing to appear over-refined in the diagnosis, I should say that we have here both mitral regurgitation and aortic constriction; at any rate, there is, to my mind, evidence of important valvular disease of the left side of the heart, the bruit evidencing which belongs rather more to the rough than to the soft type of murmurs, and which roughness indicates irregularity somewhere of the surface of the blood-course or channel.

Now this patient, Edward K——, strangely enough illustrated to some extent the remarks I had just made to you. We might have had case after case of paralysis, and either no evidence of heart-disease, or only of hypertrophy. But here was one indicating a probable roughened condition of the valves of the heart's left side, the detachment from which of some fibrinous growth, and its arrestation in the blood-stream of a cerebra artery had been, as I told you lately, pointed out as a cause of certain forms of paralysis. There are yet one or two more points I must dwell upon. Dr. Kirkes, of St. Bartholomew's, to whom we are so much indebted for a great deal of what we know about this matter, explains in this way many cases of partial and temporary paralysis suddenly ensuing in one or more limbs of *young* persons, and, so far as I recollect, would deem the paralysis thus produced as always the result of softening, or some perverted nutrition of the brain, rather than of hemorrhage; and hence such cases thus produced would necessarily evince a somewhat different set of symptoms to those resulting from true apoplexy. In the case before us the man is only 28 years old; has had no coma; is not a full-blooded, short-necked man, but the paralysis appears to me to have come on progressively or gradually. We examine his chest and find disease of the valves of the heart. Now may we regard the case before us as one possibly, if not probably, coming under Dr. Kirkes' category? If the doctrine I have alluded to should hereafter not seem to be sufficiently established by observation, it is one you should at any rate have knowledge of, and as the present case seemed to offer me the opportunity of referring to it, I have thought it my duty to do so. It is necessary that I should tell you, however, that I cannot make out that our present patient has ever had rheumatism, and that to my mind there is some little difficulty in reconciling a *sudden* form of paralysis with arterial plugging by a detached growth, not followed by hemorrhage. If the result

of the plugging is softening, the result of softening is not generally sudden, but progressive. Why should not, then, the paralysis be more progressive than it is assumed to be, and as it usually is, in cerebral ramollissement. It is true we do meet with cases of softening so sudden in their symptoms, as to lead the practitioner to think he has a case of cerebral hemorrhage to deal with, and my predecessor, Dr. Rowland, wrote, you know, a book upon this very subject. But, then, this is the exception and not the rule, whilst in the other case it is assumed as the rule, and not the exception. If the paralysis be due to the atrophy and degeneration arising from the supply of blood being cut off from the part, one would think it would be more gradual, or the symptoms more progressive than in those cases in which they are laid down as occurring.—*Lancet, Feb.* 2, 1856, *p.* 122.

22.—ON THE TREATMENT OF HÆMOPTYSIS.

By M. Aran.

M. Aran agrees with those who entirely condemn the employment of blood-letting in the treatment of hæmoptysis, as it only temporarily arrests the bleeding, while it is dangerous, owing to the debility, and increased susceptibility to the intercurrent affections it gives rise to. He has, for some time past, been engaged in testing the efficacy of the various hæmostatic agents employed in hæmoptysis; and in this paper he gives the results of his observations. He considers the essence of turpentine a most valuable remedy, given in doses of from 10 to 30 drops every hour, either in a spoonful of water, or mixed up with magnesia as a bolus. Marked amendment usually occurs in a few hours, and in from twenty-four to thirty-six hours the bleeding ceases. It is less suitable for young or plethoric subjects with febrile action, than in weak cachectic individuals, exhibiting atonic characteristics. Ergot of rye and ergotine are far less efficacious; but chloride of sodium, given in doses of 1 to $2\frac{1}{2}$ drachms, proves very efficacious in some cases, and has the advantage of being always at hand. Among the astringents, tannin, and especially gallic acid, are to be recommended; the latter, while quite as efficacious, does not exert the same desiccating effect upon the tissues, or induce the obstinate constipation produced by tannin. As a mean dose, M. Aran gives 15 centigrammes (a centigramme is one-seventh of a grain) every hour or alternate hour. He has had little experience in the use of emetic and nauseating remedies; but in three cases in which veratrine was employed, the bleeding ceased as if by enchantment. This class of remedies, indeed, would deserve to stand in the first class of hæmostatic agents, were there not others possessing like efficacy, and yet not giving rise to the painful nausea these produce. M. Aran has derived great advantage from the combined use of digitalis and nitre. In ordinary cases, he gives in the twenty-four hours, 30 centigrammes of digitalis, and $1\frac{1}{2}$ gramme (a gramme is 15 grains) of nitre, divided

into four doses; but in very severe cases these doses may be very much increased, so that the digitalis has been given to the extent of 1½ gramme, and the nitre to 4 grammes, without injuriously affecting the action of the heart, while the effect produced on the hemorrhage has been remarkable. Its arrest never, however, takes place so suddenly under the use of these medicines, as when turpentine or gallic acid is employed.

In abundant, but not immediately dangerous hemorrhage we can choose among any of the above-mentioned means. In extremely abundant hemorrhage, we must arrest the flow as speedily as possible, by agents which do not depress the powers of the economy too much, and which are not too slow in their operation. Neither ergot, acetate of lead, nor alum is sufficient to meet the danger. Turpentine, gallic acid, chloride of sodium, or nitre with digitalis, can alone be trusted; but the necessity of increasing the dose with the intensity of the hemorrhage may, perhaps, render the chloride of sodium, and especially the nitre and digitalis, dangerous, through the possibility of the production of a too great depression of the heart's action. It is, therefore, to gallic acid or turpentine that we must chiefly trust in these severe cases; and we must not limit ourselves to their employment, but also endeavour to procure a temporary arrest of the hemorrhage by ligatures to the limbs and the application of ice to the chest, allowing the means employed internally to consolidate this temporary cure.—*Med. Times and Gaz., Jan.* 26, 1856, *p.* 95.

23.—ON THE INFLUENCE OF PRESSURE IN MODIFYING AUSCULTATORY SOUNDS.

By Dr. William Jenner, Physician to University College Hospital.

[The influence of pressure in the production, intensification, and modification of certain morbid sounds, generated in the region of the heart, was well illustrated in a case of pericarditis, some of the points of which we may mention.]

When the stethoscope was placed over any part of the præcordial region between the fourth and seventh costal cartilages, two abnormal sounds were heard with each beat of the heart—one systolic, the other diastolic—I say systolic and diastolic, though they were not completely synchronous in point of time with the heart's systole and diastole. Loud as were the murmurs, especially the systolic, over the heart, they were not audible when the stethoscope was placed at a very little distance from the præcordial region. In character the murmurs were rubbing. I pointed out at the bedside that the case offered us a perfect example of the to-and-fro sound of Dr. Watson. Moreover, the sounds impressed on all who heard them the idea that they were generated very near to the stethoscope. As the parietes of the lad's

thorax were tolerably flexible, a moderate force sufficed to bring the two layers of the pericardium more closely into contact, and so the friction resulting from the passage over each other of the roughened visceral and parietal layers of the pericardium, was increased, and consequently the murmur generated by the friction was intensified. At one time it was supposed, (and is so still by some,) that murmurs generated in the pericardium could always be intensified by pressure in the young; and, also, that when a murmur, audible over the heart, could be intensified by pressure, that absolute proof was obtained that the murmur was generated in the pericardium.

However, we now know that neither of these statements is true; for, Dr. Walshe has observed one or more cases in which a pericardial murmur was diminished in loudness by pressure, the free play of the surfaces being impeded by the pressure. And the girl Stone, and the boys Perrin and Whiting, afford us indisputable evidence that a murmur may not merely be intensified, but may even be generated at the base of the heart, by pressure. These children are aged respectively 7, 9, and 10; the girl was the subject of chorea, one boy is suffering from enlargement of the spleen, the other from a skin affection; all have well-formed chests, but in all the thoracic walls are very flexible. Moderate force causes recession of the sternum, and of the cartilages of the ribs, and consequently of the parts subjacent.

In reference to these children, and several other cases of a like kind, which I have noted, I wish to impress on you the following facts:—

1. That no murmur was audible when the stethoscope was applied without force to the sternum, or to the cartilages of the ribs.

2. That when a moderate amount of pressure was exerted, through the medium of the stethoscope, on the sternum, over the base of the heart, a systolic murmur was audible.

3. That the loudness of the murmur varied with the degree of the pressure.

4. That pressure on the base of the sternum did not elicit a murmur.

5. That pressure on the sternum, opposite and above the fourth cartilage, and below the first costal cartilage, elicited a murmur.

6. That the healthy sounds of the heart only were to be heard at the second right costal cartilage, whatever the amount of force to which it was subjected.

7. That a moderate degree of pressure on the second left costal cartilage, or on the second left intercostal space, near the sternum, rendered a murmur audible.

Judging, then, from the situations in which the murmur was producible, viz., over the base of the heart and upwards to the first left interspace; the period in the heart's beats which it occupied, viz., the systole: and the manipulation required to elicit it, viz., pressure, I think there can be no doubt—1. That in these cases the murmur was

generated in the pulmonary artery. 2. That the murmur was produced by the passage of the blood through a narrow part of the vessel into a wider part. 3. That the direct force exercised on the thoracic parietes, by the stethoscope, was the immediate cause of the local diminution of the calibre of the vessel.

The only observer who has, as far as I know, recorded a case identical with those to which I have just referred, is Dr. Latham. You will find the case in his third Clinical Lecture; it is so admirably told that I must read it to you:—"A little boy, aged 8½ years, high-spirited and vivacious, but thin and out of health, was brought to me under a suspicion of disease of the heart. Its impulse was not felt beyond the apex, but there it was in excess; yet there was no larger space of dulness than natural in the præcordial region. Upon auscultation, however, this remarkable peculiarity was made out: when the ear or the stethoscope rested gently upon the præcordial region, no unnatural sound whatever was heard; but when either the ear or the stethoscope was applied with such force as to cause the ribs to sink a little below their natural level, then a loud bellows murmur sprang up. The space at which it was heard, and not beyond it, was just so far as the mouth of the stethoscope covered, when it was placed upon the cartilage of the third rib as a centre. This case, which occurred to me," continues Dr. Latham, "five years ago, has made me watchful ever since, lest haply I might create the murmur I was in search of; and it is no needless caution where the patient is young, and the frame-work of the chest is yielding. Never, indeed, the chest being not deformed, never but in this single instance have I produced a murmur simulating that of valvular disease. But very often, when over-earnest in what I was about, I have pressed too heavily on the præcordial region, a sort of jarring sound has reached my ear, and brought with it the suspicion of disease; until setting the heart free from the weight and the restraint which I had inadvertently imposed on it, I have at once lost the sound and the apprehension too, which had arisen from my own awkward manœuvring."

Since, however, my attention was directed to the subject by hearing the produced murmur in the girl, Stone, I have found that I have been able to produce a basic systolic murmur in a large number of healthy children, and I am satisfied that Dr. Latham's caution is highly necessary, viz.,—that when examining a child you must be careful not to exercise much pressure at the base of the heart, lest you produce a murmur which may cause considerable anxiety in regard to the ultimate fate of your patient. For you will remember that the murmur produced by the weight of your own head on the stethoscope placed over the base of the heart, in the girl Stone, was infinitely louder than you or I ever heard in the same situation from mere anæmia, or spanæmia, as what we lately knew as anæmia is now often called. Had I not detected the cause of the murmur, I should have

supposed the child to be the subject of congenital disease of the heart.

In the girl May, lately admitted into Ward 3, because the subject of tapeworm, we found that pretty firm pressure on the thoracic walls over the pulmonary artery modified materially the first sound, and although we could not say that a murmur was produced by the pressure, we could not but admit that so long as the pressure was maintained the first sound was not healthy.

This again confirms the accuracy of Dr. Latham's observations, recorded in the quotations I have read from his lectures.

I have told you that the murmur produced by pressure over the base of the heart, in the cases in the hospital, originated in the pulmonary artery; I must add that I doubt much whether pressure can be exercised over the base of the heart, powerful enough to diminish the calibre of the aorta, and for these reasons:—1. Because of the relative situation of the aorta and pulmonary artery; 2. Because of the comparative thickness of its walls. I am inclined, then, to think, that systolic basic endocardial murmurs produced or intensified by pressure have their origin in the pulmonary artery. So when in doubt as to whether a systolic basic endocardial murmur is generated in the pulmonary artery or aorta, I have derived some assistance in arriving at a correct conclusion from a consideration of the effect produced on it by pressure.

The little boy Perrin affords us an example of a very common condition, viz., one in which the patient can exercise pressure on his own pulmonary artery, sufficiently powerful to generate a murmur. So long as this child is inspiring there is no cardiac murmur, but at the termination of expiration there is a loud blowing, systolic murmur; this murmur has its point of greatest intensity at mid-sternum, opposite the third interspace; it is louder at the first left than at the first right intercostal spaces next to the sternum; it is not audible at the apex. These facts show the pulmonary artery to be the seat of the murmur. During forced expiration the anterior surface of the thorax is flattened, the antero-posterior diameter of the thorax is considerably shortened, and so the pulmonary artery is pressed on. This child is remarkably anæmic, there is a very loud venous hum in his neck, and it is difficult to place the stethoscope over his carotid artery without compressing it enough to generate a systolic murmur.

Compression of the pulmonary artery by the patient in expiration, or by the physician with his stethoscope, is a common determining cause of the basic systolic murmur so often heard in anæmia. In anæmia, too, the arterial walls appear to resist pressure less strongly than in health, and this is one of the reasons why it is sometimes almost impossible to place the stethoscope on the carotid artery of an anæmic young woman, without diminishing its calibre at the spot, and so generating a loud murmur.

But the pulmonary artery is sometimes compressed by the descent

of the sternum, during expiration, sufficiently to generate a murmur when the patient is not anæmic; I saw a capital example of this a day or two since, in a fine healthy-looking young man. My opinion was asked about him because, among other ailments, he was supposed to have valvular disease of the heart, indicated by a bruit at the base On first applying my ear to his chest, I heard no murmur; then I heard a loud blowing sound, and then again I lost it for a little while, my stethoscope remaining all the time at the same spot; viz., over the sternum, opposite the 4th costal cartilage. By examining the case more closely, I found that this gentleman was one of those whose thorax is considerably flattened during deep expiration, that the murmur was only heard at the termination of expiration, and that it was audible at the 2nd left, but not at the 2nd right, cartilage; I concluded, therefore, that the murmur was generated in the pulmonary artery when that vessel was compressed by the receding sternum. It may be supposed, that in such cases there is really an organic aortic murmur, and that during inspiration it is inaudible, in consequence of the advance of the sternum, and the interposition of a little lung between the aorta and the sternum; but it is not so, for this reason, a murmur so loud as is heard in some of these cases would assuredly be heard at the top of the sternum, and at the aortic or second left cartilage, even during the deepest inspiration.

And now, as to the form of the chest in which basic and systolic murmurs are, or can be, generated by pressure. You may remember, that I directed your attention at the early part of the session to two great varieties of the thorax in regard of form, viz., one in which the lateral diameter is considerable, the antero-posterior small, and the other, in which the antero-posterior diameter is long, the lateral comparatively short; the latter variety includes all forms of pigeon or chicken breast, and among others the rickety thorax. It is in the former of these two varieties of thorax, that these pulmonary artery murmurs can be generated by pressure. In the pigeon-breasted thorax, the sternum is placed at a considerable height above the pulmonary artery, and cannot be forced against it by the physician or the patient; and I have demonstrated to you, that emphysematous lung fills up the space between the receding sternal ends of the ribs and the prominent sternum in the rickety thorax. I have examined a very, very large number of children with rickety thorax, and other forms of pigeon-breast, but could never even modify the cardiac sound; while it is rare to examine a flat flexible thorax, and not be able to produce a basic systolic murmur. The three conditions, then, favouring the production of a murmur by pressure, whether exercised by the physician or patient, over the base of the heart, are:—1. Narrowness of the chest from before backwards. 2. Flexibility of the thoracic parietes. 3. Anæmia. In anæmia, remember, 1st. That the walls of the vessels are more flaccid than in health; 2nd. That the blood is poor in solid con-

stituents, and, therefore, more readily thrown into sound-generating vibrations than is healthy blood.

[In the Lumleian lectures, delivered by Dr. Elliotson in 1830, an instance was mentioned of the temporary occurrence of a loud bellows sound in a case of ascites, which instantly ceased on the removal of the fluid. The only explanation of it which could be given was that the heart was tilted up a little by the pressure of the water, so that the passage of the blood into the aorta was impeded. This was a very peculiar case, and the only one of the kind recorded before one by Dr. Jenner, published a short time ago, which was from ovarian dropsy, and caused in a similar manner. In the same lectures is mentioned a case of severe bronchitis, where there was no bellows murmur while the patient was erect, but which became audible the moment she lay down.]

In anæmia, the morbid sound in the neck may be increased, or even brought on altogether, by pressure with the stethoscope, or by turning the head very much round to the opposite shoulder; as is well known, and as I have done and do continually. I have for several years been in the habit of increasing the morbid sounds of the openings of the heart, by making the patient, whatever his age, expire as forcibly as possible, and refrain from inspiring again as long as possible. The measure is useful in cases of doubtful morbid sounds of the heart; and I adopted it with the view of bringing the heart and the walls of the chest in as great proximity as possible, that its sounds might more perfectly reach my ear. But Dr. Peter Latham produced a morbid sound by pressing the walls of the chest upon the heart of a child, and Dr. Jenner has done it in many children, the parietes of whose chests are of course yielding, by moderate pressure with the stethoscope on the second left costal cartilage, or on the second left intercostal space, where the pressure would influence, he suggests, the pulmonary artery.

From the time when the production of a morbid cardiac sound by altered position of the heart first occurred in my practice, cases every now and then presented themselves to me in which examination after death showed no organic disease at an opening, nor any morbid condition of the pericardium; and I know many persons, male and female adults, now alive and well, who, some years ago, afforded cardiac preternatural sounds, not of friction of the pericardium, and at present afford none; so that, like many others, I have long ceased to regard a preternatural sound in the heart as alone indicative of a serious condition. In the child, youth, and young adult, cases of enlargement and strong action of the heart, with frictional sound or sounds, after pericarditis, are often recovered from completely after a long period; and I know at this moment many healthy adults, without anything morbid discoverable in their chests, whose condition of heart was frightful to me ten, fifteen, or twenty years ago. Nay, enlargement

of the heart in adults not beyond the middle period of life, in whom there never had been signs of pericarditis, but in whom I found a preternatural sound at the base, strong and too frequent action and over too large a space, with dyspnœa, and great œdema of the lower extremities, I have seen recovered from perfectly; and I cannot at this moment detect, and for a length of time have been unable to detect, any sign of disease in them.

Again, I have known, and know, old persons, whose hearts had or have afforded a morbid systolic sound, discovered accidentally at the base of the heart, for many years, with no other symptom, and who had or have no idea of anything wrong in their chests. One gentleman, with a hernia, died rather more than a year ago of intestinal obstruction within a few days of his ninetieth year, in whom I had very long noticed a loud twanging systolic sound at the base of the heart: but, with the exception of his hernia, he enjoyed extraordinarily fine health, walking alone about the streets, and sitting at the bottom of his table at dinner parties like a man of sixty. I first noticed the sound seven years before his death, and how long it had existed I cannot tell.

I have, therefore, long since ceased to regard signs of diseased heart, and especially a mere preternatural sound, even at an opening, as necessarily indicating dangerous or irremediable disease.

I recollect hearing a loud bellows-sound invariably at the systole of a man's heart in St. Thomas's Hospital for a considerable time, that at length I heard at the diastole only: after death, the pericardium and all the openings were healthy, but the left ventricle was greatly dilated. I did not publish the case, because I feared I had been originally mistaken as to the period of the sound, especially as I did not meet with a similar example. But, a year ago, I did meet with another example of this change in the period of a morbid sound of the heart, and I had examined the case attentively and made careful notes. The patient may be still alive.

[This opinion of Dr. Elliotson and Dr. Jenner is further confirmed by a case in the Leeds Infirmary, reported by the estimable and talented house surgeon of that hospital, Mr. Hardwick, who says—]

About a year and a half ago, a thin woman, aged 26, was admitted into the Leeds Infirmary to be tapped for ovarian dropsy, which had accumulated to a very large extent. She was a special object of attention at the time, on account of a loud systolic bruit which could be heard over the greater part of the chest, and, at times, even by any one within two or three yards of her bed, so that she used to amuse the patients who lay near her by calling their attention to the noise. She also suffered from palpitation, but from no other symptoms of heart disease. I cannot state positively whether the bruit disappeared entirely after she was tapped, as I have no notes of the case; but I think it did. The patient has been tapped two or three times since,

and was in the Infirmary two months ago for the same purpose; the accumulation of fluid was again very large, fifty-six pints being removed, but, neither before nor after the operation, could any abnormal sound be heard within the heart, although I examined her carefully almost every day. The sounds of the heart were more loud, sharp, and distinct than normal, probably owing to the thin state of the parietes of the chest, since there was no evidence of dilatation of the heart.—*Med. Times and Gazette, March* 1, *p.* 203; *April* 5, *p.* 333; *and April* 19, 1856, *p.* 391.

DISEASES OF THE ORGANS OF RESPIRATION.

24.—CASE OF SEVERE INFLAMMATORY CROUP.

Read before the Western Medical and Surgical Society of London, by Mr. Martyn.

[This case shows well the beneficial effects of alcoholic stimulants, when freely administered in certain acute inflammatory affections. The child was aged four years.]

It had just recovered from the effects of scarlatina. The croupy symptoms became fully established in the course of twenty-four hours after first being observed. The fever was very high, and the obstruction to the circulation through the lungs very imminent, and the characteristic symptoms of croupy inspiration alarming. These symptoms were treated as usual, with promptness and the ordinary remedies. The patient was put under the influence of tartar emetic and calomel, and a large blister was applied to the neck. The next day the symptoms continued as before, but towards evening the third stage, or that of collapse, became established. The face became dusky, and the skin covered with a damp perspiration, the mouth and lips purple and congested, and the efforts at respiration alarming. Under these circumstances the antimonial and mercurial treatment was omitted, and recourse had to stimulants. He was ordered half an ounce of brandy, diluted, and a less quantity at intervals of an hour, or oftener if it could be swallowed; this was accompanied by the administration of the chlorate of potassa every hour, in combination with good nourishment. The next day, though the breathing was very laboured and difficult, the child was decidedly relieved. He continued to mend under the above treatment by brandy, though for some days the chest symptoms rendered his recovery doubtful. In the remarks which Mr. Martyn offered on the case, he considered that the time for the successful use of tartar emetic, &c., soon passed away, and that exhaustion soon waits upon the patient and demands the opposite kind of treatment. He considered that brandy was in every way preferable to any of the other stimulants used in the third stage of croup,

as ammonia, senega, and the like; it had the advantage of being acceptable to children, and of producing more decided and permanent effects than any other stimulant. He was then led to make a few remarks upon the general lowering and evacuating treatment adopted in all acute diseases, the effect of which, in conjunction with the spare and starving diet, soon reduce the patient to such a state of exhaustion as to render him unable to combat the symptoms of disease. Should we not, then, recognise this element in all such diseases more readily than we do, and be ready at an early stage to administer alcoholic stimulants as soon as the evacuants employed have had fair play? Sure it is too late to delay their administration until exhaustion has too truly developed itself. Such stimulants do not augment inflammation, but maintain the vital powers whilst the natural sources of power, as nutrition, are cut off; and if stimulants do not directly combat inflammation, they surely, by supporting the system, give opportunity and fresh impulse to those vital forces that are always tending to subdue inflammations.—*Lancet, Dec.* 1, 1855, *p.* 523.

25.—ON THE DIAGNOSIS OF FIBRINOUS CONCRETIONS IN THE HEART IN CASES OF INFLAMMATORY CROUP.

By Dr. Benj. W. Richardson, Physician to the Royal Infirmary for Diseases of the Chest, and Lecturer on Pathology at the Grosvenor Place School of Medicine.

[The following remarks have been called forth in consequence of a paper by Mr. Henry Smith on the treatment of croup by tracheotomy. Dr. Richardson believes that free respiration is necessary to the formation of fibrine but that the excess of fibrine and its subsequent deposition in inflammatory cases, due in great part to one arrested or quickened expiration.]

With regard to croup, I take a decided and strong position, which has peculiar bearings; first, on diagnosis, and secondly, on treatment.

My views are these:—1. That croup, like all other hyperinotic diseases, commences first as a general disorder. That, in the outset of the general symptoms, the respiration is quickened, the combustion of the body is increased, and the fibrinous constituent of the blood is made in proportions abnormally excessive.

2. In regard to the local mischief, I contend that this, in inflammatory croup, is a secondary effect, like all other local manifestations.

3. In croup of the inflammatory type death may and does occur, either from an obstruction in the heart (syncope) arising from the right cavities of that organ being the seat of a fibrinous deposit, or from obstruction in the windpipe (apnœa), arising from over-secretion; or, lastly, from a combination of these causes, as happened in a case related to the Medical Society by Dr. Hawksley, where the local mischief produced death, while yet the fibrinous concretion was becoming developed, and before it had materially impeded the circulation.

Holding, then, these views on the causes of death in croup, I am in no way prepared to deny the usefulness of tracheotomy in some forms of this disorder, nor have I ever denied it; but I maintain that there are certain cases in which the death is clearly by syncope, the result of fibrinous deposition, and that in these cases the operation is simply absurd. I would further remark, that Mr. Smith has related cases where the symptoms, as he describes them, were those of syncope from this cause, and that the death in those cases was removed altogether from the operation—being death by syncope, not by apnœa.

The symptoms which mark the cases of croup about to terminate in syncope, the result of cardiac obstruction, are distinct from those arising from obstruction in the air-passages.

The differences are these:—In the cases of syncope from arrested circulation, the dyspnœa is not caused by obstruction in the larynx, but by the peculiar anxiety and gasping desire to breathe incident to the want of blood in the pulmonic circuit. In this case, therefore, if the stethoscope be carried from the upper part of the windpipe downwards, and over the whole chest, the respiratory murmur is audible, and it may be clear throughout, so that the observer is prepared to say, there is here no such deficiency of respiration as will account for the severity of the symptoms. Again, the most common physicial pulmonic sign in these cases is that of emphysema, which is often accompanied, in very young children, by a peculiar prominence in the anterior part of the chest. This emphysema, when present, is strictly diagnostic of fibrinous obstruction, and is altogether subversive of the idea that the cause of the symptoms is an obstruction in the windpipe.

In addition, there are in these cases the definite signs which mark the cardiac obstruction. The body is cold and generally pale, almost marbly, but mostly so at the extreme parts. The lips are slightly blue; the cheeks are occasionally the same. The jugular veins are distended. The pulse is irregular. The body is painfully restless. The heart-beats are feeble, quick, and irregular; the sounds muffled with a bruit in some cases. No real convulsons of the limbs occur, but intense anxiety and constant movement.

In those cases, on the other hand, where the death is really due to apnœa,—the effect of obstruction in the air-passages,—the symptoms are widely different. In these cases there is some point in the respiratory canal where an obstruction can be detected. The lungs show signs of congestion, but never of emphysema. The difficulty of respiration arises from an absolute inability to fill the chest. From the fact of the obstruction being in the respiratory circuit, such blood as passes through it is not arterialized, and the surface of the body instead of being pale, as in cases of cardiac obstruction, is generally of a dark hue, with the veins more decidedly turgid. The muscles are not simply restless, but actually convulsed violently, the patient being unconscious of the fact; the heart-sounds are clear, and its motions, though feeble, are rarely tumultuous.

Lastly, the breathing is the first to stop at death, while, in the former case, the heart takes the precedence in this respect.

These broad and definite diagnostic signs can never be mistaken, except in instances where there is a clot in the heart coincidently with obstruction in the windpipe. Here some difficulty may arise, but a careful inquiry into all the facts will indicate the existence of the complication.

The points of practice which are to be gathered from a clear diagnosis in cases of this character are numerous, but in none so important as in settling the question whether tracheotomy should or should not be performed.

If in any given case the practitioner shall find the symptoms referable purely to obstruction in the trachea or larynx, and the circulation unembarrassed, he will operate with good chance of success, granting that the point of obstruction is not too low, and that no further inflammation succeeds. If, on the contrary, he should diagnose the symptoms of cardiac obstruction, whether or not complicated with constriction in the windpipe, the operation is worse than useless; it will, of necessity, fail, because there are other fatal influences at work which the knife cannot affect.

The success which has attended the operation of tracheotomy, as performed by M. Troussean, is not so remarkable as some late writers have imagined. Setting aside the supposition that some of these cases were those of spasmodic croup, it seems to me that, if any man should make up his mind to operate moderately early in every case of croup, he would meet with some success, because he would be sure to hit upon certain cases in which the danger arises mainly from arrested respiration. But the principle of indiscriminate operation is always bad practice in the end; and in croup it is most unnecessary, since the symptoms which indicate that the operation cannot possibly succeed are quite clear to any one who can simply read off pathological phenomena to the extent of being able to say whether, in failing states of the body, the cause of failure is located in the circulatory or in the respiratory system.—*Med. Times and Gazette, March* 8, 1856, *p.* 230.

26.—ON THE PATHOLOGY OF HOOPING COUGH.

By Dr. Graily Hewitt, Lecturer on Comparative Anatomy and Zoology at St. Mary's Hospital Medical School.

[During an epidemic of hooping cough, which proved very fatal in the Infirmary and Workhouse of St. Marylebone, Dr. Hewitt had ample opportunities of investigating the morbid appearances in this disease. His views on the production of pulmonary collapse are in accordance with those of Dr. W. T. Gairdner, as the following passage will show.]

The facts I am about to submit go to prove, that the catarrhal inflammation of the bronchial tubes which occurs in hooping-cough is, in fatal cases, attended almost universally with collapse of the lungs. It will then be obvious that an attempt to direct attention to the frequency and importance of this co-existence will not be misplaced, inasmuch as the fact will have considerable influence on the question of the appropriateness of the one or the other plan of treatment, in cases where such a co-existence is to be suspected.

The observations which form the basis of this communication, and the results of which will now be given, have most of them been made at the St. Marylebone Infirmary and Workhouse, where, during this last spring, hooping-cough has been the cause of a considerable mortality. Most of them have been made on fatal cases which have occurred in one or other of these institutions; but some of the cases came under my notice elsewhere. The observations are nineteen in number. The ages of the children who were the subject of them varied from four years to one month, the average being eighteen months. In all, the state of the lungs was carefully noted. The chief lesion found after death was collapse of the lung substance. The following is a statement of the degree to which this pathological condition manifested itself in the different lobes of the two lungs.

In the *right lung*, portions of the upper lobe were found collapsed in six cases, and in four more to a less degree.

The middle lobe was collapsed, wholly or in part, in sixteen cases.

The lower lobe was more or less affected with collapse in eighteen cases.

In the *left lung*, the upper lobe presented the same lesion in fifteen cases, the whole of the anterior tongue-like prolongation being in most of the cases affected.

The lower lobe was collapsed more or less in eighteen cases.

In seven of the cases, the portions collapsed were also congested—in some to a high degree.

The *mucous membrane* of the bronchial tubes was in some cases slightly injected. In almost all, the tubes were filled more or less by a muco-purulent fluid, rather tenacious in consistence, and in the tubes leading to collapsed portions non-aerated.

The air cells in the lobules immediately adjoining the collapsed portions were enlarged, although this enlargement was never found to be great in degree. It was, however, quite obvious with the aid of a lens. The space created by the collapse of certain portions, appeared to be filled up by a corresponding increase in the bulk of the parts adjoining; thus, in some cases, where the tongue of the upper left lobe was collapsed, it was tilted downwards and backwards, while its position was occupied by an emphysematous portion of the remainder of the lobe.

True inflammation of the parenchyma of the lung was only seen in four cases. In one, a large portion of the upper right lobe was affected,

and tubercle found in the bronchial glands. Hepatization to a slight extent, and confined to one or two lobules scattered here and there in the lung, was met with in one or two other cases. The bronchial glands were, in all cases where the attention was directed to them, enlarged, congested, friable. In three of the cases they were infiltrated with yellow tubercle.

The state of the *pleura* was also observed. In five cases only were there any adhesions found, and in two of these the lungs were tuberculous. In one of these tuberculous cases, both pleural cavities contained a tolerable quantity of effused fluid, but no fluid was found in the other cases. No appreciable change was detected in the vagi nerves, although they were examined in most of the cases.

The *larynx* and *trachea* presented nothing remarkable; they contained generally a certain quantity of puriform fluid. The mucous membrane was never markedly injected.

In all these cases, then, the bronchial tubes were the seat of a catarrhal inflammation, affecting chiefly the smaller tubes, and in many cases the air-cells themselves. An inflammation occupying the smaller air-tubes has been called variously capillary bronchitis, broncho-pneumonia, catarrhal pneumonia, vesicular bronchitis. The two latter terms seem the most appropriate, particularly as applied to the affection of the lungs which occurs in hooping-cough. There would appear to be an intimate connection between this catarrhal pneumonia and collapse of the lung; the one seems to have an important influence in causing the production of the other. What has been improperly termed lobular pneumonia is, in reality, collapse of the lung, brought about by the catarrhal inflammation of the minute bronchi. It is not pneumonia at all in the true sense of the word. In the hepatisation of pneumonia, the lung substance is enlarged, hard, firm, very friable, breaking down into a purulent-looking detritus on pressure; the cut surface is granular, and inflation produces no effect in restoring to the parts affected the natural appearance and physical character. The hepatized portions are non-crepitant, and sink in water, agreeing in these characters with the collapsed portions.

Too much importance can scarcely be attached to this distinction; and there can be no doubt that many cases in which collapse of the lung only existed, have been treated as if pneumonia were present, and therefore inappropriately. An antiphlogistic mode of treatment might suit the one kind of case, but it would tend to hasten a fatal result in the other.

[The following remarks on the secondary conditions of the lungs following collapse are also important:—]

Another question of great interest is the secondary effect of collapse of one portion of the lung on other portions not in the same condition. The observations I have made on this subject enable me to state that a secondary effect is produced, and what that effect is I will now

go on to specify. As I have before remarked, the size of the air-cells at different situations on the surface of the lungs was examined with the aid of a lens, the result of such examination being to establish the fact that in the lobules immediately adjoining those which were collapsed, the air-cells were decidedly enlarged. The extent of surface which presented this enlargement of the air-cells bore a certain and constant ratio to the amount of lung which was collapsed; thus, when the collapse was slight in amount, the air-cells in the adjoining lobules were little altered, and *vice versâ*. These facts are strongly confirmatory of the opinion of Dr. Gairdner, as to the production of emphysema generally by collapse of the lung. The vacuum which would be formed in the cavity of the thorax by collapse of a portion of its contents, must necessarily be occupied by some solid or gaseous material, and it is obviously the most probable occurrence, that in order that this vacant space may be filled up, the lung substance near it will be further expanded, the air-cells becoming thus dilated, and emphysema produced. According to this theory, emphysema is a *complementary* lesion. Dr. Gairdner is of opinion that emphysema is always produced in this way. This may or may not be the case; my own observations are not sufficiently numerous to enable me to give an opinion. Thus much may, however, be with truth stated, that in those of the foregoing cases in which emphysema was observed, this theory seemed the only adequate explanation of the appearances which presented themselves.—*Edin. Med. Journal, Nov.* 1855, *p.* 447.

27.—ON ASPHYXIA, ITS RATIONALE AND ITS REMEDIES.

By Dr. Marshall Hall, F.R.S., &c.

The term Asphyxia, which ought to be exchanged for Apnœa, designates that condition of the animal system which results from the suspension of respiration.

Respiration involves two processes—the inhalation of oxygen, and the exhalation of carbonic acid.

The remedy for the suspension of respiration is, on every principle of common sense, the restoration of respiration. This view might be considered, irrespective of physiological inquiry and proof, as self-evident; but that proof is amply supplied by physiology.

Of the two functions suspended, it is certain, from physiological inquiry, that the retention of the carbonic acid is by far the more fatal, and that, in a word, asphyxia is the result of carbonic acid retained in the blood, which becomes, in its excess, a blood-poison.

If this view be correct, it is evident that restored respiration is to the blood-poison in asphyxia what the stomach pump is to poison in the stomach; and that it is *the* special remedy, the *sine quâ non*, in asphyxia.

But this blood-poison is formed with a rapidity proportionate to the circulation, which is, in its turn, proportionate to the temperature.

To elevate the temperature, or to accelerate the circulation, *without* having *first* secured the return of respiration, is therefore *not to save*, but in reality *to destroy life!*

Now, let me draw my reader's attention to the *Rules* for treating asphyxia, proposed and practised by the Royal Humane Society. They are as follow:—

"1. Convey the body carefully, with the head and shoulders supported in a raised position, to the nearest house.

"2. Strip the body, and rub it dry; then wrap it in hot blankets, and then place it in a warm bed in a warm chamber free from smoke.

"3. Wipe and cleanse the mouth and nostrils.

"4. In order to restore the natural warmth of the body,—

Move a heated covered warming-pan over the back and spine.

Put bladders or bottles of hot water, or heated bricks, to the pit of the stomach, the arm-pits, between the thighs, and to the soles of the feet.

Foment the body with hot flannels.

Rub the body briskly with the hand; do not, however, suspend the use of the other means at the same time; but, if possible, immerse the body in a warm bath at blood heat, or 100 deg. of the thermometer, as this is preferable to the other means for restoring warmth.

"5. Volatile salts or hartshorn to be passed occasionally to and fro under the nostrils.

"6. No more persons to be admitted into the room than is absolutely necessary."

My first remark on these rules for treating asphyxia is, that "to convey the body to the nearest house," is doubly wrong. In the first place, *the loss of time* necessary for this purpose is—*loss of life!* on the contrary, not a moment should be lost; the patient should be treated instantly, on the spot, therefore. In the second place, except in very inclement weather, the exposure of the face and thorax to the breeze is an important auxiliary to the special treatment of asphyxia.

But most of all, the various modes of restoring the temperature of the patient, the warm-bath especially, are objectionable, or more than objectionable; they are at once inappropriate, unphysiological, and deleterious.

If there be a fact well established in physiology, it is that an animal bears the suspension of respiration in proportion, not to the warmth, but, within physiological limits, to the lowness of the temperature, the lower limit being about 60° Fahr. A warm bath of 100° Fahr. must be injurious.

All other modes of inducing warmth are also injurious, if they divert the attention from *the one remedy* in asphyxia—artificial respiration,—or otherwise interfere with the measures to be adopted with the object of restoring this lost function.

Such, then, are the views which the scientific physician *must* take in regard to the late rules for treating asphyxia promulgated by the Royal Humane Society.

I now proceed to state the measures by which those rules must be replaced.

I revert to a proposition already made: as asphyxia is the result of suspended respiration, the one remedy for the condition so induced is, self-evidently and experimentally, the restoration of respiration.

But there is an impediment to artificial respiration never before pointed out. It is the obstruction of the glottis or the entrance into the windpipe, in the supine position, by the tongue falling backwards, and carrying with it the epiglottis—an event which can only be effectually remedied by adopting the *prone position.*

In this position the tongue falls forward, drawing with it the epiglottis, and leaving the ingress into the windpipe *free.*

But even when the *way* is patent, there remains the question, how is respiration to be effected? The syringe or the bellows may not be at hand, and if they were, the violence used by them is apt to *tear* the delicate tissue of the lungs. The mode proposed by Leroy, of compressing the thorax by means of a bandage, and allowing its expansion by the resilience of the costal cartilages, is proved by experiment to be futile, chiefly, no doubt, from its being attempted in the supine position, with the glottis obstructed.

The one effectual mode of proceeding is this: let the patient be placed in the prone position, the head and neck being preserved in their proper place. The tongue will fall forward, and leave the entrance into the windpipe free. But this is not all, the thorax and abdomen will be *compressed* with a force equal to the weight of the body, and *ex*piration will take place. Let the body be now *turned* gently on the side, (through rather more than the quarter of a circle), and the pressure on the thorax and abdomen will be removed, and inspiration—effectual *in*spiration, will take place. The expiration and inspiration are augmented by timeously applying and removing alternately pressure on the spine and ribs.

Nothing can be more beautiful than this life-giving—(if life can be given)—this breathing process.

In one series of experiments, twenty cubic inches of air were *ex*pelled on placing a corpse in the prone position, and ten cubic inches more by making pressure on the thorax and ribs, the *same* quantities being *in*haled on removing that pressure, and on rotating the body on its side. But I must give the experiments in detail:—

A subject was laid on the table, and pressure made on the thorax and ribs, so as to imitate the procedure of Leroy. There was no result; a little gurgling was heard in the throat, but *no inspiration* followed. The tongue had fallen backwards, and closed the glottis or aperture into the windpipe! All inspiration was prevented.

Another subject was placed in the *prone* position. The tongue

having fallen *forwards*, and the glottis being free, there was the *ex*piration of twenty cubic inches of air, a quantity increased by ten cubic inches more on making pressure along the posterior part of the thorax and on the ribs. On removing this pressure, and turning the body through a quarter of a circle or rather more, on the side, the whole of the thirty cubic inches of air were *in*spired!

These manœuvres being repeated, ample respiration was performed!

Nay, there may be a question whether such considerable acts of respiration may not be too much.

It is to be observed, however, that, in this mode of artificial respiration, *no force* is used; the lung therefore is not injured; and that, as the air in the trachea and bronchial tubes undergoes little or no change in quantity, the whole inspired air passes into the air-cells, where the function of respiration is alone performed.

It deserves to be noticed, that in the beginning of this experiment in the prone position, the head had been allowed to hang over the edge of the table; all respiration was frustrated! *Such is the importance of position.*

Reserving the full exposition of this method of *postural respiration*, this theseopnœa, (from Θεσις, position), for another occasion, I will conclude by reducing these views into the simplest *Rules* for the treatment of asphyxia.

New Rules for the Treatment of Asphyxia.

I. Send with all speed for medical aid, for articles of clothing, blankets, &c.

II. Treat the patient on the spot, in the open air, exposing the face and chest freely to the breeze, except in too cold weather.

I. *To excite Respiration,*

III. Place the patient gently on the face, (to allow any fluids to flow from the mouth).

IV. Then raise the patient into the sitting posture, and endeavour to *excite* respiration,

1. By snuff, hartshorn, &c., applied to the nostrils;
2. By irritating the throat by a feather or the finger;
3. By dashing hot and cold water *alternately* on the face and chest.

If there be no success, lose no time, but

II. *To imitate Respiration,*

V. Replace the patient on his face, his arms under his head, that the tongue may fall *forward*, and leave the entrance into the windpipe free, and that any fluids may flow out of the mouth; then

1. Turn the body gradually but completely on the *side, and a little more*, and then again on the face, alternately (to induce *in*spiration and *ex*piration);
2. When replaced, apply pressure along the back, and ribs, and then

remove it (to induce further *ex*piration and *in*spiration,) and proceed as before ;

3. Let these measures be repeated gently, deliberately, but efficiently and perseveringly, *sixteen times* in the minute, *only;*

III. *To induce Circulation and Warmth,*

1. *Continuing* these measures, rub all the limbs and the trunk *upwards* with the warm hands, making *firm pressure* energetically;

2. Replace the wet clothes by such other covering, &c., as can be procured.

IV. *Omit the warm-bath until respiration be re-established.*

To recapitulate, I observe that—

1. If there be one fact more self-evident than another, it is that artificial respiration is the *sine quâ non* in the treatment of asphyxia, apnœa, or suspended respiration.

2. If there be one fact more established in physiology than another, it is that within just limits, a *low* temperature conduces to the protraction of life, in cases of suspended respiration, and that a more elevated temperature destroys life. This is the result of the admirable, the incomparable, work of Edwards.

3. Now the *only* mode of inducing efficient *respiration* artificially, at all times and under all circumstances, by the hands alone, is that of the postural manœuvres described in this paper.

This measure *must* be adopted.

4. The *next* measure is, I have stated, to restore the *circulation* and *warmth* by means of pressure firmly and simultaneously applied *in the course of the veins*, therefore *upwards.*

5. And the measure *not to be adopted*, because it tends to extinguish life, is *the warm bath, without* artificial respiration.

This measure *must* be relinquished.

These conclusions are at once the conclusions of common sense and of physiological experiment. On these views human life may, nay, must, sometimes depend.—*Lancet, April* 12, 1856, *p.* 393.

28.—*On a New Mode of Effecting Artificial Respiration.* By Dr. Herbert Williams.—Artificial respiration is our only recourse in many cases of asphyxia, and the only efficient mode of accomplishing it is as here described. It was first proposed by Dr. Marshall Hall, and has lately been practised at St. George's Hospital.

The mouth and one nostril were carefully closed by means of sticking-plaster, to prevent the possibility of air finding its way through them. In the other nostril was inserted a caoutchouc tube, about three feet long, at the end of which was fixed a bent glass tube of the same size, into which was poured a teaspoonful of water.

The operator then took hold of the subject (which was lying in the prone position) by the left shoulder and hip, and gently raised it, until

the whole body was resting on the right side. This movement caused the air to enter the glass tube, creating bubbles in the water as it passed on into the lungs; and on the body being slowly replaced on the stomach, the air was freely expelled from the lungs, and caused the same agitation in the water as it made its exit through the glass tube.

Judging from the agitation of the water, the quantity of air which passed into the lungs must have been considerable, and quite sufficient for the purpose of artificial respiration.

The great advantage of inflating the lungs by means of the rotatory movement, or raising the body by the one shoulder and hip, is the readiness with which one person can perform the operation, in the absence of any other assistance.

This experiment appeared to be perfectly satisfactory.

The other method was then tried, by raising the subject by the two shoulders, until the stomach was freed from any pressure, on the table, and then gently lowered down again. This movement produced precisely the same results as the rotatory, but required more strength to perform it.

Dr. Marshall Hall, in commenting on the above experiments, says, that in the *supine* position, the tongue *falls* backwards, and closes the glottis. All *in*spiration is therefore possible.

In the *prone* position, the tongue *falls* forwards, and leaves the glottis freely patent. *In*spiration is therefore possible.

Respiration is *effected* by placing the patient in the prone position, and turning *on the side* fully and rather more, alternately. In the former position, pressure is made on the thorax and abdomen equal to the weight of the body, and *ex*piration takes place. In the latter, that pressure is removed, and *in*spiration occurs.

These movements being made alternately, gently and equably, *sixteen* times a minute, and no more, respiration is efficiently performed, and this without bellows, syringe, or any apparatus, all of which are not only unnecessary, but, for reasons which cannot now be detailed, dangerous.—*Lancet, March* 1, 1856, *p.* 229.

29.—*On Linear Cauterization of the Throat in Asphyxia.* By M. Faure. M. Faure's proposal is founded upon numerous experiments on animals asphyxiated, in a variety of modes, and on one case of asphyxia by charcoal, occurring in a girl. The actual cautery, he observes, has long since been employed in distinguishing real from apparent death, and for the purpose of resuscitation; but it has not succeeded, owing to the absence of proper method and due perseverance. When properly used, however great the danger, as long as ever the feeblest respiratory movements continue, it will establish a favourable reaction, and to this end is far superior to all other means. The following are the conclusions arrived at:—1. When the heart has

entirely ceased to beat, or when the pulsations are fewer than three in five seconds, death is certain, whatever may be done; but, except in these very extreme cases, cauterization may restore life. 2. Deep and long parallel lines must be traced, by a strongly-heated iron, along the upper and lateral parts of the chest, opposite the four or five first ribs, this being the part of the body that longest retains the faculty of being stimulated. 3. The first effect is a muscular contraction, which is quite local, and without sign of pain: the ribs then move, the thorax enlarges, and inspiration becomes more ample. Sometimes more than a minute elapses before any sign of sensibility can be induced, even by the most intense burn. 4. When the general sensibility has become aroused, it is of the highest importance to keep it excited for a long time; and to this end flagellation is the easiest and the most certain means. It must be persisted in for a long time, and the patient must be well watched. 5. Frequently asphyxiated persons die after having been restored; but this must be referred rather to the shock sustained by the economy, in consequence of the suppression of respiration, than to the introduction of any poisonous principle, inasmuch as such death has occurred in persons who have not been exposed to any toxical influence, as in those drowned. —*Med. Times and Gazette, Dec.* 22, 1855, *p.* 628.

30.—PATHOLOGY OF TUBERCLE.

Tubercle appears under the form of grey or yellow tubercle-masses. The nature of these, as we all know, has been much discussed. In form, the two kinds of tubercle resemble each other: roundish granulations, of about the size of millet seeds, isolated or grouped together in irregular nodular masses. *Grey tubercle* is of uniform consistence, toughish or softish, compressible and of pearly-grey colour. It is composed essentially of nuclei, 1–125 to 1–100 of mill. diam., held together in an adhesive binding medium; besides these there are present, cells containing one or more nuclei, which indicate an endogenous development and growth of the before-mentioned elements. *Yellow tubercle* is of various shades of colour, opaque, friable, and of cheesy lardaceous consistence. It contains a large abundance of fine protein molecules; among which are present the elements of grey tubercle, shrivelled, indented, and wrinkled, and of a yellowish lustre.

In what relation do these kinds of tubercle stand to each? Is yellow tubercle originally distinct from, or a metamorphosed condition of, grey tubercle? To this Rokitansky answers: Grey tubercle is without doubt converted into yellow tubercle, as Laennec taught; certain other abnormal products, not tubercular, may, it is true, undergo the same metamorphosis, but still the metamorphosis is most peculiarly related to that formation which originally appears as grey tubercle. In so far as this metamorphosis occurs at an early period of the dis-

ease, and advances rapidly, it might seem as though the tubercle was, in its origin, yellow and opaque.

Tubercle is developed in the following manner:—A clear, or turbid, greyish-red, adhesive synovial-like exudation is poured out into the parenchyma, for example, of the lungs. This is the *albuminous tubercular infiltration* of Laennec. In this exudation spring up at separate points grey granulations, congregated together in little groups; these, at first soft and moist, gradually become condensed and resistent, or the texture in the part corresponding to the infiltration becomes uniformly swollen, and gradually assumes a fine granular structure, representing *tubercular infiltration of the lungs.* Minute investigation shows us, that in this infiltration the elements of tubercle are developed. On serous membranes we find the tubercle deposited as fine, vesicle-like, softish, greyish or opaque, discrete granulations, forming, when very numerous a continuous nodular-like layer of granulations. These are to be distinguished from tubercle developed in pseudo-membranes. Whether the tubercular elements arise in the exudation as a free blastema, or whether they are developed in the parenchymatous blastema, is uncertain.

Grey tubercle sooner or later is metamorphosed into yellow tubercle; in some rare cases the granulations become obsolete—that is, are converted into hard, horny nodules. The metamorphosis generally commences at the centre of the tubercle, perhaps because there the growth is of most ancient date. The yellow tubercle undergoes further changes. Its solid parts become softened down into a tolerably uniform, creamy, purulent-like fluid, in which are found an immense number of fine granular points, and some scattered elements of yellow tubercle. This is to be distinguished from the thin, whey-like, flocculent fluid, known as tubercular pus. This softening is a further spontaneous degeneration of yellow tubercle, and is different from the mere disintegration of the tubercle mass under the influence of the surrounding effusion; for it commences in the centre even of large masses. Tubercle has no vessels proper to it; but the remains of vessels and other elements of the texture invaded by the tubercle may be found in the softened mass.

Inflammation plays an important part here, in so far as it occasions an exudation into the parts around the tubercle mass, which exudation serves as a basis for the further regeneration of tubercle. Likewise inflammation supplies the materials which form the fibrous thickenings and capsules around the tubercular cavity or ulceration. The separation of the tubercle-mass from the textures around it, is also often occasioned by inflammation; the elimination of the separated mass produces a cavity or ulceration: tubercular phthisis.

The softened tubercle sometimes undergoes *Cretification*—that is, it is converted into a greasy, fatty, chalky mass, which is gradually hardened into a cretaceous substance.

In its mode of development, tubercle offers important differences.

1. It often arises in a slow and insidious manner, in the form of distinct granulations confined to one portion of an organ; these gradually increase in size and number, destroying the textures they invade; or they suddenly and rapidly increase, as in the following mode of growth. 2. In this case, the tubercular granulations are rapidly and extensively deposited, and are not confined to one organ. The tubercles thus deposited are of uniform size (miliary tubercles), and regularly distributed through the tissues. They are found, in different stages of development, at different parts of the same organ; those of recent growth soft and gelatinous, those of older date firm. The tissues thus invaded are softened and infiltrated with a thick serous effusion. Tubercular disease of this kind appears as an acute disease, with typhoid phenomena: *acute tuberculosis.* It is rarely a primitive form of tubercle. 3. The third form is *infiltration of the tissues;* it appears, as seen in infiltration of the lungs, under the form of a thick, synovial-like fluid (*albuminous infiltration*), which gradually degenerates into a firm, greyish-red, granular, broken down mass, containing portions of tissue within it. The nature of this effusion, the rapid development of the tubercle in it, its lobular form, and the growth of areolar tissue in it, are facts which favour the opinion of the inflammatory origin of this form of tubercle. This tubercle is generally metamorphosed into yellow tubercle; it runs a rapid and acute course, softening and destroying the textures which it surrounds.

The peculiarities of tubercle indicate that it is an especial anomaly of nutrition, which is frequently associated with a particular organization of the individual. It excludes the co-existence of other diseases. Cancer very rarely co-exists with it, and the especial parts attacked are different in the two diseases. Typhus, heart diseases, certain lung diseases also—emphysema, for instance—rarely co-exist with it.

Tubercle attacks nearly every part and organ of the body, and even new growths, but with marked difference in degrees of frequency: the lungs most often, then the intestinal canal, lymphatic glands, larynx, serous membranes, brain, spleen, kidneys, liver, bones and periosteum, uterus, testicles, and spinal cord. Tubercle very rarely, if ever, affects the salivary glands, the ovaries, the blood-vessels, the œsophagus, and the vagina. Moreover, tubercular disease of the intestines, of the larynx and trachea, of serous membranes, of the spleen and liver, is seldom other than secondary, and therefore of minor import.

In every organ, there is one particular part especially prone to the attacks of the tubercle: for example, the apex of the lungs, the pia mater about the pons Varolii, the grey substance of the brain, the spongy part of the bones, the lower part of the ileum, &c. The tubercular disease rarely spreads from the larynx into the pharynx. It attacks the old and young, but especially adolescents. It is generally fatal, and destroys life by injuring the functions of organs,

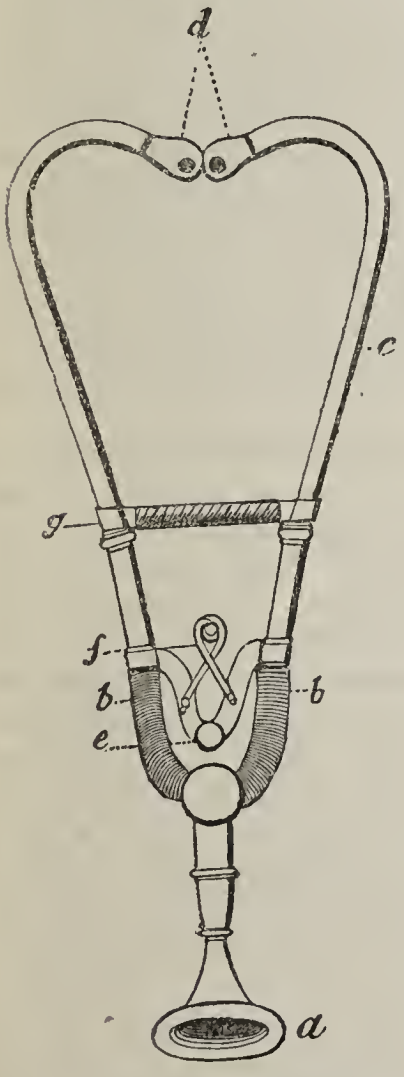
through ulceration, marasmus, and destruction of tissues; and when acute, with symptoms of blood disease. Tubercle may undergo cure by obsolescence, cretification, and elimination; but such cure avails not the patient, if new tubercle is continually deposited. Cure is effected by means of a firm capsular scar.

Such is the account, in a condensed form, given of tubercle by Rokitansky. It is plain and simple.—*British and Foreign Medico-Chirurg. Review, April*, 1856, *p.* 332.

31—ON A SELF-ADJUSTING DOUBLE STETHOSCOPE.

By Dr. James E. Pollock, Assistant-Physician to the Hospital for Consumption and Diseases of the Chest.

[This is an American invention, and possesses many advantages over others which have been recommended by eminent auscultators.]



a, Objective end.
b, Two gum-elastic tubes.
c, Two metallic tubes.
d, Two ivory knobs at aural extremities.
e, Hinge joint.
f, Spiral spring.
g, Elastic moveable spring.

The increase of sound to be gained by using both ears at once, while all loud external noise is excluded, is, a means of obtaining new information on the exploration of the chest, which has excited the attention of several careful auscultators. Many years ago, Dr. Williams used a double metal tube with two flat ear-pieces, and adapted to the bell of an ordinary stethoscope, which, except for its inconvenience, would fully answer the above indications, and give great increase of conducting power. M. Landouzy, of Paris, in 1850, constructed an instrument having a number of gum-elastic tubes, by means of which several persons could listen at the same time. In 1851, Dr. N. B. Marsh, of Cincinnati, patented a stethoscope with two gum-elastic tubes and a membrane over its objective end, which required both hands to keep it in position. More lately, in this country, Dr. Leared has made a double instrument with gutta-percha tubes.

In January, 1855, Dr. Camman, of New York, had constructed with great care a double self-adjusting instrument, of which the engraving is taken from the *New York Medical Times* for that month. Dr. Coulson,

of Castle Donington, Leicestershire, having been favoured by Dr. Camman with one of his instruments, the former gentleman most kindly placed it at my disposal for experimental purposes. The instrument is fourteen inches long; the tubes are of German silver, with a double curve towards the aural extremities terminating in ivory knobs, which when applied should rest closely against the external openings of the ears. The bore is two lines and a half in diameter, and smooth throughout. Dr. Camman dwells much on the accuracy of the curves, and conceives that the sounds conveyed are thereby increased; but it is doubtful if this be the case. Without these curves the instrument would not be capable of self-adjustment. The elastic band or spring retains the aural ends in contact with the ears, and leaves the hands free.

It will be observed, then, that we have here a very perfect instrument, which conducts the chest sounds to both ears at once, and excludes all ordinary external sounds. The results of many experiments with it prove that it is a great intensifier of sound, acting to the ear the part which a powerful lens performs to the eye. All sounds are magnified many times, and some which were inaudible by the ordinary instrument are revealed to the ear. The healthy respiratory murmur heard through it is a loud blowing, almost like the entrance of air into a smooth cavity, as heard through the single stethoscope. In intensifying, it of course alters the *character* of chest sounds, which, generally speaking, are lowered in *tone* by it. Again, as many magnifying glasses of great power are bad definers, so the ear is apt to be confused by the loudness of the sounds heard, and some practice is therefore necessary to ensure accuracy in estimating the modifications of healthy or morbid respiration.

The dry sounds are more accurately conducted than the moist; a pure friction, as in the early stage of pleuritis or pericarditis, is rendered very intense; and the dry crepitus occasionally heard in the early stages of phthisis is greatly developed. The same remark is applicable to the wavy or interrupted inspiration. The healthy expiratory murmur, which (as heard in the single stethoscope) is in duration, when compared with the inspiration, as 1 to 5, becomes prolonged when conducted by this instrument; and, without a knowledge of this fact, the observer would therefore argue some solidification of the lung as the cause of its increased audibility. This observation will at once illustrate the power of the instrument as a conductor, and the special study of it which is necessary before drawing any inference from its use. The voice sounds are greatly intensified, an ordinary pectoriloquy becoming almost startling from its loudness. The heart's sounds are magnified, but more precision in their conduction is to be gained by the use of the ordinary stethoscope. Morbid cardiac sounds are never difficult to *hear*, though their origin may be occasionally obscure; it is therefore plain that a magnifier of sounds would not assist the diagnosis. Certain low and indistinct murmurs,

in aneurisms within the chest, might possibly be revealed by its use, which would be otherwise unheard.

Slight differences in the percussion note are rendered very manifest by applying this instrument to the ears, and holding the bell near the part of the chest percussed, which may be done either by the observer or another person, the self-adjusting power of the stethoscope leaving the hands free. It is obvious that the fœtal heart sounds, and the (so called) "bruit placentaire," in pregnancy, may be heard at a very early period, and that in doubtful cases of fracture a crepitus, undistinguishable by the single stethoscope, would most likely be detected. In applying it to the chest, it is absolutely necessary to remove the dress, as the slightest friction masks all other sounds; its perfect adjustment, so that no air may enter under the edge of the bell, is also requisite.

It is plain, from the above remarks, that some practice is necessary to enable us to profit by the increased powers of this stethoscope, as all the sounds are exaggerated, altered in tone, and therefore unlike those which we at present recognise by the aid of the old instrument. It is also evident that it is not likely to displace the latter in daily use, the sounds in which, duly recognised, are sufficiently accurate, and, above all, so universally known, as, in the judgment of skilful observers, to lead to a satisfactory diagnosis. Nay, further, it is little likely that advances in our knowledge of chest affections are to come through improvements in mechanical devices for measuring or rendering manifest physical alterations in the respiratory organs; but there are various physiological and experimental uses to which such an instrument as this may be applied, and it may also prove a valuable assistance in the investigation of disease. I may add that Mr. Coxeter, of Grafton-street, has, under my directions, constructed with great care some of these instruments.—*Lancet, April* 12, 1856, *p.* 398.

32.—NEW FORM OF STETHOSCOPE.

By Dr. Arthur Leared.

[This kind of instrument, though not so convenient as the one in common use, will be found more useful in certain cases, by rendering the sounds more intense and distinct.—Dr. Leared says:]

Some years since I made many experiments in this direction, and the result of one of them I considered satisfactory. I had a stethoscope made of gutta-percha, having two ear-pieces attached to curved tubes, diverging from, but continuous with, a single tube, having the usual bell-shaped extremity. The distance between the ear-pieces being somewhat less than the breadth of the head, owing to the elasticity of the tubes, the instrument might be termed self-adjusting. The effect of leaving both organs of hearing concentrated by its application is surprising. The breath and heart sounds are several times louder when heard through the double than the single instrument. A

bruit de soufflet heard in both ways may be correctly compared with the noises of the common bellows and that of a smith respectively. Provided the double instrument be held steadily, and there be no friction against its sides, the chest sounds do not lose in clearness. It is obvious, also, that some practice in observing with it is requisite. Made in a very flexible manner, the instrument is in some respects more convenient, but in using it the chest extremity must then be held by the patient. I was induced to send the instrument to the Exhibition of 1851 as a novelty. Of its presence there the official catalogue is a standing record, and it is now deposited somewhere with other articles presented by exhibitors. Instead of publishing it more formally, I hoped that some, from seeing it, might be induced to give a similar instrument a trial, and in the description sent with it I expressed confidence that in certain cases of difficult diagnosis, owing to the lowness of the thoracic sounds, the double stethoscope would be found of considerable use. Not a little surprised, then, was I to observe, in a late number of the *British and Foreign Medical and Chirurgical Review*, under the head of "Progress of Medicine," a notice of a pamphlet that had appeared in America descriptive of a new double self-adjusting stethoscope, the performances of which were further grandiloquently set forth. The notice concluded by stating that as soon as the pamphlet was received, full particulars and an engraving of the instrument would be given in the Review. Being reminded of the matter, I now beg to claim it as having originated with myself.—*Med. Times and Gazette, Nov.* 24, 1855, *p.* 521.

33.—ON CAPILLARY BRONCHITIS AND STRUMOUS PNEUMONIA.

By Dr. Addison, Guy's Hospital.

Some recent cases of capillary bronchitis at Guy's, and of what Dr. Addison, without any attention to pathological refinement, terms "strumous pneumonia," have given this experienced physician several occasions for dilating on the peculiarities of this and similar affections —peculiarities especially as regards strumous pneumonia, or phthisis, which every year's practice at Guy's, he states, seems to confirm, and which we deem, at present, worthy of noting. In a case recently, which offered all the features of strumous pneumonia, different possibly from what Rokitansky calls bronchial tuberculosis, but which ended fatally, the chest was resonant, the lungs were found after death gorged with air, the air-cells broken down, while the right lung presented "phthisical disease"—in other words, latent tubercles,—for Dr. Addison draws a broad and well-marked line between latent tubercles, which may remain months and years in the lung without creating alarm, and that form of disease too often met with and so incurable, active phthisis, or a more advanced or too often neglected stage of the same pathological condition.

Dr. Addison recently has had reason to doubt, also, the value of some of Laennec's doctrines, though he performed miracles for one man. He believes, and impresses it on his class, that Laennec's special physical sign of vomica, or tubercular cavity,—we mean, of course, pectoriloquy,—is entirely fallacious, as the clinical student may meet with vomica and tubercular softening without pectoriloquy, and, again, the converse. Much of the misunderstanding in actual practice might be avoided, in fact, if we could get out of the early errors of Laennec, so complacently adhered to by many, and so confidently translated, and laid down in former years. Dr. Addison states that the experience of any practitioner may be always doubted, if he abruptly asks, "Is there vomica present?"—a far better term is phthisical disease. He finds too often, also, the entire lung one mass of tubercular matter, though no tubercle was suspected. These are the cases where so very much may be done by proper treatment, but which too often, from an ordinary winter cold, capillary bronchitis, or chronic pneumonia, go into incurable consumption. We should be obliged to give dozens of cases which have been treated recently at Guy's Hospital, which our space will not permit, if we were to show the data on which Dr. Addison builds his views. We believe the experience of our older physicians, who, like him, have witnessed a succession of theories on lung diseases and consumption for forty years, as specially valuable when contrasted with the microscopic theories of consumption, and chemical decompositions of carbon in the blood, so fashionable at present.

It need hardly be observed that there is scarcely a question in the practice of medicine so often asked, or one for which consultations are so eagerly required, as the existence of vomica in the lungs. We may have, as might be seen during the year at Guy's and other hospitals, a vomica or cavity for pulmonary apoplexy, or as the result of phlebitic deposit, oftener found, perhaps, in the lungs than liver, though not generally considered so. We may have pectoriloquy, or something like it, from enlarged bronchial tubes ; yet in none of these, though no doubt all very grave and serious diseases, have we phthisis, though we have the distinguishing marks and signs laid down by Laennec.

In the patient in the present instance the latent tubercular deposits in the right lung did not cause death, but the capillary bronchitis in the opposite lung. Phthisis, in a word, from innumerable cases, Dr. Addison believes to be the active or acute state or stage of strumous pneumonia, nothing more; and with this idea in his mind, the student and practitioner will do more good for his patient than by trusting to the obscurity of a term which means very little, and which, like everything obscure and ill-defined, has a tendency to be mixed up with another idea, that of death or fatality, or incurability.

Mere tubercles, the result of strumous dyscrasia, may lie dormant for months, as we have already said—nay, for years, if inflammation,

of an active kind, as capillary bronchitis, be not set up. The following case at Guy's is in point :—

A child, lately under care, was dying very evidently of what was described on the card as gastro-intestinal or gastric fever; the amount and rapid increase of emaciation, in spite of chicken-broth, wine, arrowroot, &c., were most unusual, and led Dr. Addison, in consultation with his colleagues, Dr. Barlow and Dr. Owen Rees, to suspect phthisis. On the most careful stethoscopic examination, however, nothing of the kind could be detected; the lungs seemed everywhere healthy; yet at the post-mortem, a day or two after, they were found to present one mass of tuberculous matter lying dormant—chronic or primary tuberculosis this might be called, which we know takes place with great rapidity, and generally with symptoms of fever of the typhus character. No active inflammation had attacked the lungs, or they would have gone into cavities; yet this state of the lung tissue, as impeding the normal formation of healthy blood, had given rise to the emaciation of phthisis, so to speak, without phthisis.

Talking over such matters with some good pathological observers in various hospitals, there seems to be little or no doubt as to the complete identity of scrofulous matter and tubercle. We know in a great measure how scrofula is encouraged and partly checked. It may be only a matter of time, then, to take phthisis out of the list of incurable diseases. Going through the wards of University College Hospital with Dr. Walshe, we find his experience of late agreeing in many points with that of Dr. Addison, chronic pneumonic consolidation appearing to him to differ little, except in terms, from tuberculous infiltration. He is inclined still to agree with Laennec, that grey tubercle differs only slightly from the yellow tubercle, the latter being a more mature form of the former, though other observers doubt this, but believe that grey and yellow tubercle are distinct, though often combined in the same tuberculous mass. Dr. Addison remarks on the tendency to spontaneous consolidation and chalky deposit in some cases of grey tubercle, a very marked case of which was also recently shown his class in the post-mortem theatre at Guy's. Thus grey cicatrization or shrinking up, like healthy fibrin, giving rise to obsolescence, perhaps the most favourable termination of such cases we have yet arrived at. In a post-mortem we attended this month with Dr. Todd and his class, a very large cretified mass was picked out of the body of the lung, the greater part of which was filled with what Dr. Todd conceived to be concrete pus and tubercle, the result of strumous phlebitis. The yellow or advanced stage of tubercle, as contrasted with the grey, has a tendency to soften and give rise to vomica, and these honeycombed appearances of the lungs are familiar to every one accustomed to necroscopic inquiries. A very practical point is dwelt upon by all these physicians, and is the result of hospital experience, that if we can prevent inflammation and improve the original cachectic condition of the blood, more especially where we

have a tendency to softening, we may add several years to patients' lives. Hence the value of cod-liver oil, counter-irritants, as turpentine and acetic acid, to the chest, the mild air of Rome or Madeira for those who can afford it, early, but not late in the disease. It is remarked that tubercular deposit is essentially formed in vascular parts on the outside of vessels, while cartilaginous parts, ligaments, and internally, the pancreas and ovaries, for some reason are free from it. Dr. Jenner tells us he has seen it in the pancreas, but this is exceedingly exceptional.

Where doubts exist as to the presence of tubercle in patients, several facts observed in hospitals seem to strengthen those doubts. Though we may not have tubercle in some organs, as the ovary or pancreas, we may have cancer in such parts. One morbid state of the blood seems to exclude the other. The state of the blood which is most favourable to banish tubercle or consumption from the system is a highly venous condition, tubercle being now very generally thought to be a deposit of a fibrinous character, not unlike what takes place in aneurismal swellings. Indeed, Rokitansky believes the exhaustion of the fibrinous constituent of the blood in the latter in some measure also prevents tubercular deposit. These views, corroborated every month in our larger hospitals, are exceedingly interesting, and hold out hopes, not dim or discouraging, of our one day being able to check or cure the disease. Cystic growths of any kind are said to be never associated with tubercle; pregnancy also is believed in some measure to check its growth, it is thought, by impeding respiration, and causing a venous and hyperinotic condition of the blood. In children tubercle affects the lymphatic glands and spleen, more often than the lungs, and next the brain. This proclivity to the deposit in different organs seems however, to vary in different climates and countries. Sufferers from miasmatic influences, such as attend goitre, ague, typhus, or the exanthemata, are not in general at the same time attacked with tubercular deposit, though any of these may lay the groundwork of a subsequent cachectic state of the blood favourable to its production. All these points are well laid down at the bed-side of several patients in various hospitals at present.

It is believed that there is a remote, but unmistakable, analogy between the strumous matter infiltrated into the lungs in tubercular deposit, and that described, for instance, by Sir B. Brodie, in non-vascular parts like the ligaments and cartilages of joints, and so familiar in surgical wards in cases of excision of joints. Dr. Williams describes a form of pneumonia like that to which Dr. Addison more specifically calls attention. He describes the lung as like a piece of oolite, and believes consumption may originate in this, without any distinct tuberculous crasis or condition of the blood. There is very little doubt that this condition of the blood is more of a negative than a positive character, and more easily understood from its effects than from any well-marked chemical or microscopic peculiarity.

In cases where we have not phthisical disease as the result of bad inflammation of the lungs, we have very often, as in another case recently in Guy's, a series of evils radiating, as it were, from bronchitis. We have not here the phthisical tendency, and we get then dropsy.

J. M——, a woman aged forty-five, at present under treatment for dropsy. The starting point of her illness seemed to be an attack of bronchitis, consequent on the cessation of the menses. This was speedily followed by mitral disease of the heart, and dropsy. Mitral disease throws back the blood into the left auricle and lungs, congestion in the lungs induces regurgitation into the hepatic veins, with distention of the liver, and the lower extremities then swell. Dr. Addison lays very marked emphasis on the pulse in such cases. In phthisical patients, it is quick and small; in mitral disease, it is irregular and small, so as almost to be pathognomic of this condition, as contrasted with aortic disease; while in the latter, with even the most marked and most extensive heart-disease, the pulse is undisturbed. These three points, if properly kept in mind by students, would, he thinks, save them an infinity of useless toil in looking for diseases which do not exist, and in many other instances serve as a sort of key-note to the entire history of cases, and direct attention at once to the seat of the malady, mitral disease, if the student can so educate his ear as to distinguish a *bruit* from a rub or *frottement*, being the starting-point of many liver and dropsical affections, complicated with bronchitis, for the reasons just stated, and strumous pneumonia the essence of phthisical disease or consumption.—*Lancet, Oct.* 20, 1855 *p.* 359.

34.—ON THE TREATMENT OF CONSOLIDATED LUNGS FROM PNEUMONIA.

By Dr. Todd, King's College Hospital.

One of the most interesting features we have recently noticed in Dr. Todd's practice at King's College Hospital is a plan of treating solidified lungs and strumous pneumonia by turpentine—a mode not new possibly, but eminently valuable, and one in which Dr. Todd seems to gain greater confidence every session. If we dwell on minor points of this character, it is because we see such cases too often overlooked as they present themselves in the out-patients' department of hospitals, and because this medicine has been the secret of many reputed cures of consumption amongst practitioners outside of the profession.

J. B., aged 21, was admitted into King's College Hospital, October 2nd, suffering under various symptoms of chest disease, the result of a severe attack of pneumonia. Dr. Todd pointed out to his class that the entire lung of one side was completely solidified. This lung had, in all probability, gone through the three stages of pneumonia so familiar in practice, but often so very unmanageable in their results, the

first and second stages of pneumonic inflammation usually merging into one another, and leaving the lung quite solid.

The first, or congestive stage, is easily cured when detected early. The second stage, in which these congested vessels relieve themselves by fibrinous exudation into the lung, and slight hemorrhage, as shown in the characteristic rust-coloured expectoration, is also very curable. It is not very well named, perhaps, as hepatization, in which the lung is sprinkled sometimes with pinky granulations, and which Bayle and others look upon as the first stage of tubercular disease. Dr. Todd also described the exudation into the parts, with its granular blastema blood-corpuscles, and exudation-cells, the latter, perhaps, traceable from the state of granular corpuscles to that consolidated stage where we now meet it, or the third stage of this disease—that of grey hepatization, with its various mottlings or spotting of the lung. A purulent fluid sometimes exudes, yet this is not essentially a state of suppuration, though very nearly allied to it; it is also different from tubercle, though in many cases next door to it,—the chief practical point, to Dr. Todd, being, that the consolidation of pneumonia does not necessarily destroy the vesicular structure of the lung, no more than effusion into the iris, in iritis, removable by mercury, destroys the structure of that delicate part; the inflammatory effusion, in pneumonia, occurring almost universally through the lung-tissue, as well as *into* the air-cells and the inter-vesicular tissue. In a very advanced stage of pneumonia, it is true, we may have pulmonary abscess. This was evidently not the case in the present instance. The treatment adopted by Dr. Todd, and which he finds most effectual, was the following:—Wine, six ounces, daily; a draught every third hour, composed of julep of acetate of ammonia, with aromatic spirits of ammonia in excess; and strong turpentine stupes, carefully applied, every night and morning, over the back of the chest and site of the consolidated lung. Diet moderately stimulating,

Oct. 4th. On seeing this patient two days after we found he had already begun to improve; the lung, previously quite dead as far as respiratory murmur was concerned, began to give signs of healthy vesicular murmur. The right lung, as will have been observed, is most usually that affected. Dr. Todd has great faith in the stimulant action of turpentine—a remedy not often used, but which in this and numerous other cases has proved almost specific in its action. In phthisical cases also it may be used combined with strong acetic acid, when its action becomes even still more beneficial.

25th. This man is quite well.—*Lancet, Oct.* 20, 1855, *p.* 360.

35.–ON EMPYEMA, AND THE DANGER OF PARACENTESIS.

By Dr. Addison, Guy's Hospital.

[The operation of paracentesis thoracis has lately become very common, especially in continental hospitals. Dr. Addison, however, as the

result of very extensive experience in such cases, is decidedly against it, though in his early years he was one of its warmest advocates. The operation may succeed very satisfactorily at the time, but this tells little for the ultimate result. The case under notice had been tapped two or three times previously, with temporary relief, but was again admitted into hospital for the same disease. The enlargement of the side was very well marked. The operation was again performed, under the direction of Mr. Cock, when six pints of fluid were drawn off. The operation succeeded very well in emptying the chest, and no accidental complication was detected at the time, but the man died soon afterwards from exhaustion and unavoidable hemorrhage into the chest, from some small intercostal branch having been wounded.]

Dr. Addison illustrated the case to his class in the deadhouse, with reference to one or two others which had recently come under his notice. He was sent for to the country, to see a young man in what was called fever; he lost caste, he said, in the neighbourhood, as he at once said it was not fever, but marked pleuritic effusion, quite unsuspected by the surgeon in attendance. He was rather afraid to mention the word trocar, or paracentesis would have been tried. There was no time to be lost, so he ordered large blisters over the chest, mild diuretics, composed of digitalis and squills, with other alteratives. The young man got perfectly well. Dr. Addison now believes, from the numerous cases seen every year at Guy's, that paracentesis thoracis is one of the worst and most deceiving operations in general practice. A serous cavity, he thinks, is almost invariably changed into a cavity pouring out purulent matter by the first operation, and the thick, leather-like false membranes lining the pleura, soon make the operation one of very great difficulty and danger. Nature herself, if assisted by proper remedies, as those already indicated, will often remove serous effusions from the pleura; but if once interfered with by instrumental assistance, the amount of pus separated from the system is almost incredible, and beyond her power to get rid of. Cases are mentioned of twelve and fourteen pints of purulent matter drawn from the chest, but its production is very possibly due to the first opening made in the pleura. This young man continues well; but it would be very difficult to say how many of those subsequent changes of empyema he would now have undergone, if paracentesis had been employed. Even hemorrhage into the pleura, when not at all suspected, as in the hospital case now under consideration, may do serious and fatal mischief. During the post-mortem examination, Dr. Addison drew the attention of his class to the roughened and thickened condition of the adhesions lining the pleura, those being not at all unlike softened leather or half-boiled tripe. This was also a great obstacle to the right performance of the operation of paracentesis of the chest, an obstacle of the most serious import sometimes in private practice.

Dr. Addison further related a case in which he had been called to see a gentleman whose pleura was full of fluid; it was at a time that, guided more, perhaps, by the fancies of new books than by experience, he was led to believe paracentesis a good operation for lessening dyspnœa and relieving the most urgent symptoms of extensive effusion into the pleura. The trocar and canula were boldly pushed into the chest; but nothing followed. It was then decided in consultation that the contents of the pleura were "too solid" to come out, and nothing more was done. The patient died some time afterwards. the effusion and dulness having remained still unchanged, and on the post-mortem table the same operator tried the operation again, but it was of no use. The chest was then opened, and it was found to contain some quarts of fluid, but the leather or tripe-like exudations inside the ribs were found to have closed up the canula, and pushed themselves before it like a valve. Even the lung may be so bound down by these thick membranes as not to be able to expand again. The dangers of the operation are to be considered of such a serious nature that they are by all means to be avoided.—*Lancet*, *Nov.* 17, 1855, *p.* 469.

36.—ON THE EFFICACY OF SMALL DOSES OF MORPHIA IN CERTAIN CHEST DISEASES.

By Dr. Edward Smith. (Read before the Medical Society of London.)

The dose referred to by the author was from the sixty-fourth to the twenty-fourth of a grain for an infant or young child, and from the twentieth to the twelfth of a grain for an adult, repeated from three to six times in the twenty-four hours. The principle involved was the removal of excessive cough, in those cases in which the cough resulted from nervous irritability of the structures of the air-passages, and thereby to prevent various ill-effects which would follow from its continuance. He did not regard the cough as a symptom merely, but as the result of irritation, and it was by the removal of the irritation that the cough was to be prevented. He showed that the effect of minute and often repeated doses of morphia was far more efficacious than occasional and larger doses, and that the sensorium remained quite unaffected, and the bowels nearly so, under its influence, and therefore that no disturbance to the general system was produced by its administration. The author selected three diseases in illustration of the merits of the remedy, viz., hooping cough, the ordinary and spasmodic form of chronic bronchitis, and phthisis. Hooping-cough he regarded as essentially a disease of the nervous system, quite apart from inflammation, and considered the principle of treatment to be the removal of the spasm, so that the cough might be reduced to the harmless state of common cough. He believed the secretion to be chiefly due to the violence of the cough, and consequently that the aim should not be to increase the secretion by expectorants, but to stop the

cough, and allow the secretion to cease. He was also of opinion that the congestion of the lungs in more advanced cases, which often leads to other complications, is chiefly due to the spasmodic cough. Thus he inferred that the prevention of the cough was in fact the prevention of all serious and fatal complications. The treatment he recommended was first to remove all sources of irritation, to give nutritive food in small quantities and very frequently, to expose the patient to cool pure air, and in general to place it in the best sanitary conditions, and then to administer the morphia. The system adopted in giving the morphia was to begin with a very small dose, (say the sixty-fourth of a grain to an infant four months old), and, if need be, to rapidly increase it until the slightest drowsiness was perceptible, and then to regard that effect as the measure of the dose, and to continue the dose and effect until the spasm subsided. He particularly insisted upon the fact that any dose less than sufficient to affect the sensorium in the slightest degree was insufficient for the immediate cure of the disease, and therefore that the art in the administration was to produce and maintain that effect in the quickest way, and with the smallest dose. After giving the sixty-fourth of a grain for three or four doses without any drowsiness, he would then increase it to the forty-eighth of a grain for three or four more doses, and again, if need be, to the thirty-eighth and thirty-second of a grain until the slightest drowsiness appeared. Thus the proper dose would soon be ascertained, and within one or two days the spasm would be materially lessened. He stated that within four and commonly within ten days he had cured severe cases so far as to reduce the spasmodic to a common cough, and to prevent the recurrence of any complication. The points he especially urged were the rapid increase of the dose, to produce the desired effect, and the careful maintenance of the effect by regulating the dose. He insisted upon the necessity of using a graduated measure in the administration of the remedy.

Chronic Bronchitis.—The attacks of this disease, as commonly seen in the *habitués* of hospitals, he believed not to be inflammatory but nervous or spasmodic, both in the cough and in the dyspnœa, and also even in the sense of constriction of the chest; and that the aim should not be to increase the secretion, but simply and purely to remove the nervous condition on which the cough, secretion, dyspnœa, and tightness depended. The cough he believed to be much more than needful to remove detached phlegm, and by its continuance to excite the secretion, and he inferred that when relief was obtained with the increase of secretion the former was not due to the latter, but both resulted from exhaustion of the nervous irritability by lapse of time. He therefore commonly banished expectorants, and administered small doses of morphia. The dose was usually the sixteenth of a grain, repeated three or four times a day. Very speedily the cough was relieved, and then the dyspnœa, and at the same time or subsequently the sense of tightness. He maintained that the same remedy which

first relieved the cough only, would, by continuance or increase, relieve the dyspnœa also. As a preliminary step all sources of irritation were attended to, especially the liver, stomach, and bowels. The croton oil liniment was efficacious only on the principle laid down by the author, and not upon the relief of any supposed inflammatory action.

Phthisis.—The exhibition of small doses of morphia in phthisis was not with a view to cure that disease, but to lessen or prevent the occurrence of certain important complications, which the author believed to be in great part due to the cough: such were hæmoptysis, congestion or inflammatory action, vomiting after food, increase of night perspiration, disturbance of sleep, and the increase of the general irritability of the system. He was decidedly of opinion, that in all stages of the disease the cough is commonly greater than is required upon the principles of relieving the system, and therefore, and because it leads to further evils, it ought to be arrested. He especially referred to two periods. 1st. In the early stage, when there is scarcely any secretion, and when the patient voluntarily adds to the cough, to remove a little phlegm, which he believe to be its cause. He considered it essential to disabuse the patient's mind of this error, and by that means, and by the aid of morphia, to arrest the cough. 2nd. He had ascertained that the vomiting of the food after meals was not usually due to disorder of the digestive organs, but to cough accompanying an irritable state of the general system, and a state of repletion of the stomach, and he had commonly prevented it by reducing the quantity of food at each meal, (giving it more frequently,) and by administering the sixteenth of a grain of morphia immediately before or after a meal, as well as at the usual intervals during the day. A more tranquil sleep and less severe night-sweats resulted from the small dose of morphia repeated once or twice in the night than when one large dose was given.

In some of the above conditions the author considered the cough to have the importance not merely of a symptom but of a substantive disease, and as such to require especial attention in the treatment; but as it was oftentimes associated with constitutional ailments, he frequently combined the morphia with vegetable bitters, and with the sesquichloride of iron.

He preferred morphia to other narcotics because its strength is more uniform than that of vegetable extracts, and more permanent than that of hydrocyanic acid; and upon the whole it was as easly capable of minute subdivision and increase in its dose, and was less dangerous in its administration.—*Lancet, Jan.* 26, 1856, *p.* 96.

37.—*Linctus for Chronic Cough.*—The following is the formula for the linctus in common use in St. Bartholomew's Hospital:—

℞. Conf. rosæ caninæ ℥ij.; tragacanth. pulv. ℥i.; syrupi papaveris ℥vj.; aceti scillæ ℥vi,; acidi acetici, ℥xx.; aquæ ferventis ℥vj. Misce. Dosis ℥i. ad ℥iij.

A less expensive preparation is used for the same purpose in very large quantities at the London Hospital, under the name of Lohoch:—

℞. Sacchari fæcis ℔xxviij.; ol. olivæ ℥viij.; farinæ tritici ℔iv.; tinct. opii., aceti scillæ, āā ℥viij. Misce. Dosis ℥i. ad. ℥iij.

There are many forms of chronic cough, both in children and in adults, which are treated much more successfully, and far more agreeably to the patient, by the use of preparations of this kind than by the commonly-prescribed "cough-mixtures."—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 137.

38.—*On the Hourly Pulsation and Respiration in Health.* By Dr. Edward Smith, Assistant Physician to the Hospital for Consumption.—[The following deductions were founded upon experiments upon several individuals of different ages, and continued night and day for seventy two consecutive hours. The rates were ascertained in the recumbent position, due attention being given to avoid all sources of error.]

The respiration is a most varying function, and especially in children, as is proved by the process of counting, and inferred by its subordination to vocal efforts, bodily exertions, emotions, and eating. The rate of pulsation in like manner varies greatly, but the ratio of the two functions is rather influenced by respiration than pulsation. While the varying ratio implies that neither function is dependent on its rate upon the other alone, it is evident that the circulation is greatly controlled by the respiration, and especially in children and sensitive people. This is proved by the immediate effect of yawning, sighing, shouting, and other momentary emotional respiratory efforts, and by the effect of mastication and deglutition. The young have less firmness of resistance to adverse influences, as is proved by the facts that the ratio of the two functions is the least in them, and is, at the same time, the most variable. Vital actions are at their maximum in the day, and their minimum in the night; and the action of the one and the negation of the other may be in excess or defect, and need regulation. Thus the action in the day may be in excess from great sun-light, and from too much and too often repeated food; or it may be variable by long intervals between meals; while the negation of the night would be too great if the food taken in day had been in defect, or daylight had been absent. So the former may be in defect from absence of light, food, and wakefulness, and the latter in excess from the presence of these influences. Again, it is evident from the negation of the night, that night labour, whether it be study, bodily work, travelling, or marching, must be performed when the system is the least able to bear it, and consequently when it will be less efficiently accomplished, or performed with more wear of the system. Sleep is accompanied by a much lower state of the functions in the night than can be obtained during the day. Hence day sleep is less beneficial

than night sleep; and, as the lowest state of the functions is not attained till the second or third hour of sleep, early retiring to rest obtains better sleep than rest sought in the early morning, when the rate of both functions is increasing. The system becomes charged with material as the meals are repeated during the day; hence with with frequent meals, Nature calls for a less quantity and less stimulating and enduring quality of food in the latter part of the day. If no food be taken till the evening, the effect of that meal is inordinate. The absence of food in the night and the greater effect of the breakfast, added to the rapidity with which the effect of that meal passes away, imply that the breakfast should be a good meal, and be followed by another within three or four hours. The duration of the effect of the dinner is due to the remaining influence of the preceding meal, as well as to the quality of the dinner food, and implies that a considerable time should elapse before another meal. In medical practice, we may decrease pulsation by darkness, day fasting, and the lying posture, and the food may be given in the evening, night, or early morning. We may increase pulsation by light, food, and the standing or sitting postures. An absolutely even rate is not attainable; but a low and tolerably uniform rate results from long unbroken fasting, and from the influence of night; and a high and tolerably uniform rate, from frequent moderate meals leisurely eaten. Animal food not only increases but maintains, for a longer period, the rate of both functions. The rate of both functions may be regarded in practice as identical from nine a.m. to nine p.m., if food be taken frequently and very moderately; but there is a great difference between the day and the night rate. A rising or rapid pulse after nine p.m. is unnatural, but an increasing rate after three, four, or five a.m., is natural.—*Med. Times and Gazette, Jan.* 19, 1856, *p.* 71.

DISEASES OF THE ORGANS OF DIGESTION.

39.—CASE OF CANCER OF THE ŒSOPHAGUS.

By Dr. Farre, St. Bartholomew's Hospital.

The following case, which terminated fatally, at St. Bartholomew's, is deserving to be placed on record, as a well-marked instance of infiltrated scirrhus of the œsophagus, arising suddenly, without assignable cause, yet suspected by Dr. Farre before the death of the patient.

G. K., aged 55, a plasterer by trade, was admitted into St. Bartholomew's, on the 19th of September, with symptoms of general ill health, and complaining more particularly of excessive dysphagia, or inability to swallow. He stated that up to five months ago he was quite well; he might have been taken indeed, as a model of good

health; "he never knew what a day's sickness was," and would now be quite well, but that he was starved on account of his loss of food caused by the excessive pain in swallowing. Scattered over his skin were several raised, molluscous-looking spots, which first aroused the suspicion of Dr. Farre and Mr. Lloyd that the disease was of a cancerous kind. A probang was passed into the œsophagus, but was stopped by a very evident narrowing of the channel, and the use of the instrument was followed by hemorrhage, so that it did not seem advisable to repeat the operation. The patient had the usual nutritious food prescribed, with milk and mild demulcents, but after much suffering gradually sank on the 25th of last month. The post-mortem examination, carefully conducted by Mr. Callender, was particularly interesting. The friends of the deceased were extremely anxious for a full examination, as they could not understand the suddenness of the illness; the man's son attended the necropsy. The lower third of the œsophagus, as it joins the cardiac orifice of the stomach, was almost entirely obliterated by a mass of infiltrated scirrhus or cancerous disease. The lungs, though the man was stated to have been previously in perfect health, were filled at several points with healed or obsolescent tubercle; the liver also was filled with a similar deposit. The small intestines, at one or two spots, were also obliterated by cancerous growths, leaving the canal of the gut not much larger in calibre than a common quill.

This form of disease in the œsophagus is somewhat rare. A similar case occurred at St. Bartholomew's in 1851. The disease, singular to say, began with pain, of a severe kind, about the shoulder and lumbar region, ending in the most excessive difficulty in swallowing, which was found after death to depend on cancerous degeneration of the œsophagus. A case of marked encephaloid is noticed by Dr. Handfield Jones, which had proceeded to a considerable extent without producing any symptoms; as well as another instance of a man who had died of peritonitis, in which, at the post-mortem examination, a thick mass of encephaloid, ulcerated on the surface, just above the cardiac orifice, was accidentally found, extending for an inch and a half. In 'The Lancet' (1832) are two very interesting cases of disease of the œsophagus, in which the affection had assumed the character of softening subsequently dwelt upon by Rokitansky. In "Guy's Hospital Reports," also, (vol. vii. p. 141), a case of typhus is given in which the œsophagus was found entirely softened. These cases, and some few others which might be cited, corroborate the suddenness with which the results of malignant disease make their appearance in this part, which is, as a general rule, free from many other morbid affections. It is, perhaps, possible, that in the patient attended by Dr. Farre, the cancerous deposit had for some time remained in a quiescent state: but the ultimate closing up of the canal, and consequent dysphagia, had aroused the sick man's attention, when, unfortunately, all surgical or medical aid was unavailing.—*Lancet, Nov.* 10, 1855, *p.* 439.

4.0—ON SUB-ACUTE GASTRITIS.

By Dr. Lees, Physician to the Meath Hospital, Lecturer on Practice of Medicine.

[Though acute idiopathic gastritis is very rare, a sub-acute form is very common in those who take spirituous liquors to excess. Patients complain of heat and fulness at the stomach, which is tender to the touch, thirst, nausea, flatulence, acid eructations, retchings, vomitings, &c. The pulse is quickened, strength prostrated, tongue red at the edges, bowels costive, skin dry, urine scanty and high-coloured.]

The treatment of the milder forms of sub-acute gastritis is simple, for as they are mostly caused by errors of regimen, a mild farinaceous and abstemious diet will suffice for their removal; but in some constitutions, particularly if neglected, the complaint, though mild at first, becomes very serious, and often tedious, requiring great skill, care, and judgment, for there is no disease in which you are more liable to lose the confidence of your patients or their friends, unless you explain the nature of the case, its uncertain duration, its liability to relapse, and its occasionally fatal termination. The late Dr. Cheyne, one of our most successful practical physicians, remarked, with reference to this disease, that, "long and watchful practice confers no greater boon than in enabling a physician to be inactive without loss of character, or the danger of being supplanted by those who think it necessary to practice, not only for the benefit of their patients, but on the credulity of their friends or attendants." The chief points in the treatment are: first, to allay inflammation by the application of leeches, according to the urgency of the case, the age and previous condition of the patient; second, not to irritate the mucous membrane by a farrago of medicines, but content yourself by treating the most prominent symptoms. Two grains of mercury with chalk, or magnesia, at night, or the same quantity of blue pill, combined with a grain of extract of hyoscyamus or lactucarium, given for the first eight or ten nights, will allay irritation and promote healthy secretion; if there is much irritability of stomach, give one or two drops of dilute hydrocyanic acid with three grains of bicarbonate of soda in an ounce of distilled water, every two or three hours; if the skin is very dry, give two grains of nitre in an ounce of water or almond emulsion every two or three hours, and allow small quantities of mild fluids to be drank at a time, either barley water, or gum and water, or equal parts of milk and soda water or seltzer. Be very cautious of purgatives, as a very small dose of medicine often exerts a powerful effect, so, if an aperient is required, give phosphate of soda in weak chicken broth, or a solution of magnesia or soda with lemon-juice; but it is safer to regulate the bowels by enemata. If the discharge from the bowels be very frequent, or serous, or mucous, you must check them by small enemata of starch, one to three ounces, with from two to fifteen drops of laudanum, according to the age of the patient; if the evacuations

be very offensive or pungent, have some peat charcoal always left in the utensil, or you may give charcoal prepared from wood (of the poplar if possible), very finely powdered, in doses of ten or twenty grains. After five or six days you may allow them chicken broth or beef tea, and if the bowels are regular, and there is a tendency to perspiration, the mineral acids will now prove beneficial—twenty minims of nitric acid, with thirty of muriatic, in eight ounces of water; an ounce every three or four hours will be agreeable to the palate, tend to quench thirst, remove the clammy, disagreeable taste from the mouth, and allay morbid irritability. When there is great tendency to constipation, I have found small doses of sulphate of quinine, with sulphate of potash, and dilute sulphuric acid to agree very well; wine will often be requisite, but you must commence its use carefully.

A table spoonful of sherry, or claret, or some of the Rhenish wines, diluted with water, and given every three or four hours, will be sufficient to commence with; but no point of practice requires greater consideration than the giving or withdrawing wine in this form of disease, for there is a tendency to debility and prostration of the powers of life at all periods of inflammation of the gastro-intestinal system, and this condition will be aggravated by wine given at an early period; but in the advanced stages, when the pulse is small, irregular, or unequal, when the impulse of the heart is feeble and its sounds indistinct, when the circulation in the extremities is languid, you may then give wine freely, or even whiskey or brandy; a teaspoonful in a cup of warm milk, or arrow root, or sago, every hour, according to circumstances, may be given with advantage. If there be much tympanitis, it is best treated, in the early stages, by turpentine fomentations and enemata; but in the latter stages, turpentine may be given internally in half-drachm doses; and if there be much febrile irritability at night, with want of sleep, they will derive much benefit by having the legs and feet sponged with tepid water and vinegar, or dilute nitro-muriatic acid.

With regard to the diet: in all forms of sub-acute gastritis, it is necessary, in regulating it, to have reference to the stage and degree of the inflammation and the state of the system. You should remember that the stomach, though in a state of inflammation, yet is the viscus through which the system is nourished, so that though it might be desirable to restrict the diet rigidly if we only regarded this organ, yet we must bear in mind that the whole system may suffer; and the stomach itself be injured by extreme abstinence, when the system is requiring support. Such are the sympathies of this viscus with the other parts of the system, that the suffering caused by deficient nutriment in remote parts, is reflected upon it with especial force, and the stomach may thus be inflamed though the body is sinking from inanition, as was proved in the experiments of Andral and Gavarret.

The *symptoms* of chronic gastritis in the early stage are often vari-

able, obscure, and of such a character as to deceive the patient, for drowsiness and headache after meals may be the chief symptom, but in well marked cases there is acidity, flatulence, a sense of oppression and distension of the stomach after food, particularly of a solid kind, and there is often severe pain felt immediately on taking any kind of food, which may continue during the process of digestion or till vomiting takes place. Pain is very variable, both as to its seat and character; it is generally aggravated by warm drinks, and may be referred to the xiphoid cartilage, to the right or left hypochondrium, to the back, opposite the stomach, or even to the left shoulder; sometimes it is a dull heavy pain, or rather a sense of constriction at the epigastrium or behind the sternum, it may arise spontaneously, or only be caused by pressure, by the taking of food, or occur during the act of digestion. Some patients take a disgust to food, others dread it from the feeling of pain it excites.

There is seldom thirst except during digestion, and it is during this period that vomiting generally takes place of very sour, half-digested food, from which they experience great relief. In some cases, particularly in persons of intemperate habits, there occurs a profuse discharge of dark blood from the stomach, probably owing to a relaxed though congested state of the vessels. The tongue may be pale and flabby, coated with a white fur, or with thick viscid mucus, and indented with the teeth, or it may be smooth, glazed, and too clean, as denuded of its epithelium, or it may be red and fissured, or covered with aphthæ. The skin is often rough, dry, and subject to eruptions of urticaria, or papulæ, or scales. The circulation is tranquil, except during digestion, but there is often great emaciation. The urine may be high coloured and acid, with a copious deposit of lithates, or it may contain oxalate of lime, and then there is often frequent desire to void it; or it may be pale and alkaline, with a white deposit of phosphates, or an irridescent pellicle on its surface. The bowels are generally constipated, unless there be tubercular disease of the lungs (which is often found connected with it), when there is diarrhœa, and frequently an evening paroxysm of fever. The sympathetic disorders of the nervous system are numerous, evinced by headache, vertigo, muscæ volitantes, sleeplessness, irritability of temper, or despondency, apathy of mind and body, pains in the limbs, and hallucinations. They may suffer from dyspnœa, cough of a hard, resonant character, and even paroxysms of asthma, palpitations, pulsations in the epigastrium, with irregularity or intermissions in the pulse. Most of these symptoms, however, are met with in mere dyspepsia, also in specific diseases of the stomach, so that a correct diagnosis is often exceedingly difficult.

Two circumstances are of great importance in making a diagnosis; first, the length of time the disease has lasted; secondly, the result of treatment, for, if the disease has lasted a considerable time, and been aggravated by the ordinary treatment of dyspepsia, the great probability is, that the symptoms are caused either by a chronic in-

flammation of the gastric mucous membrane, or depend on some specific disease.

Chronic gastritis may be distinguished from cancer in this, that the former mostly supervenes on, and complicates some other disease, or is caused by intemperance, and errors of diet; secondly, that there are frequent bilious vomitings; thirdly, that vomiting occurs soon after food has been taken; fourthly, there are often pain and tenderness at the epigastrium from the commencement of the illness; fifthly, there is always more or less of fever during digestion; sixthly, there is no vomiting of stuff like coffee-grounds; seventhly, no tumour can be detected; eighthly, there is not the peculiar aspect that the victims of malignant disease present.

The causes of chronic gastritis are various, it often occurs secondary to tubercular phthisis, to disease of the heart or the liver, and is often the most prominent feature in Bright's disease of the kidney, but it is generally caused by intemperance in eating and drinking. You should be aware, however, that it may also be caused by an opposite condition, as has been shown by Mr. Malcolmson, in a letter addressed, in 1837, to Sir Henry (now Lord) Hardinge, on the effects of solitary confinement, and a bread and water diet, on the health of prisoners in India. He says, "Many men, particularly those of indolent habits, endure a confinement of five or six weeks on bread and water without injury to their health, but in some instances a short period is *sufficient to cause a total loss of appetite, bread is hardly touched, and on other food being allowed, the patient is unable to eat or digest it*, there is constant uneasiness about the stomach, the liver is torpid, the bowels confined, or relaxed with slimy discharges; and the swollen red tongue indicates the existence of irritation of the mucous membrane of the digestive canal, the pulse becomes quick and feeble, while the clammy skin, vertigo, debility, headache, and sleeplessness show how much the constitution suffers from diminished nervous power; their convalescence is slow, and even the subsequent allowance of food, sufficient for the maintenance of health, often fails to restore him."

Chronic gastritis is generally a tedious disease, very liable to relapse, and though seldom fatal, "per se," yet it may cause death by inducing a state of general exhaustion owing to the long-continued irritation of such an important organ, and its interference with the digestive and nutritive processes. Some authors consider that chronic gastritis may prove fatal by inducing the simple chronic ulcer, and so cause death by hemorrhage or perforation, or that it may terminate in cancer; but but I hope to convince you that they are wrong, neither of these diseases being a result of inflammation. It is certainly true, that a cancer may be excited in the stomach of a person predisposed to the disease, by an attack of inflammation, as we see to occur in the breast after an injury, but there must always exist a predisposition in the constitution.

Before commencing the treatment of chronic gastritis, always make

a careful examination of the region of the stomach itself, and at various times, both when the stomach is full and when it is empty; ascertain if there be any tenderness, or induration, or tumour, do not begin by ordering what are popularly termed stomach medicines, or be content with merely prescribing for symptoms. If there be tenderness in the epigastric region, commence by applying four or six leeches every second or third day, for three or four times, so as not to exhaust the patient's strength before you reduce the morbid action in his stomach; allow him but a small quantity of food, and that of the mildest description, consisting of farinaceous articles and milk, order abstinence from all stimulants, from hot tea and coffee, not to distend the stomach, nor to take any active exercise; you must follow up this by counter-irritation, either with croton oil, or a succession of small blisters, or with the tartar emetic ointment, mixed with mercurial ointment. Regulate the bowels by enemata, put him under a mild course of mercury, which will keep up the function of the liver as well as at the same time exercising its specific effects in altering capillary action, and by combining anodynes you will not only allay pain, but correct that morbid sensibility, which often appears to keep up inflammatory action: so give three grains of mercury with chalk, and one of extract of hyosciamus or of lactucarium every night till the gums become tender. If there be much pain, give one or two drops of dilute hydrocyanic acid, with three grains of bicarbonate of soda in an ounce of distilled water, three or four times a day, or small doses of morphia, or dress the blistered surface with it. Do not push the antiphlogistic treatment too far, as the symptoms may be kept up by a state the very opposite to that of inflammation, and capable of relief by nutritious food and the judicious use of stimuli, for remember that in all inflammations there is a point where antiphlogistic treatment should cease and stimulants come in; so after a certain time you may have recourse to tonic medicines, and commence with the vegetable tonics, as chiretta, quassia, gentian, and if they agree, then you may try bismuth, the preparations of iron, quinine, but watch their effects, and stop them if they cause pain or sickness. There is one medicine which is often of great use in allaying pain and morbid irritability of the stomach; I allude to the nitrate of silver, and it appears to be peculiarly advantageous in those cases in which the tongue is shining and smooth, as if the papillæ had been shaved off. Make your patients wear flannel, use the warm bath occasionally, and take moderate exercise; regulate the diet carefully for a considerable time, even after they consider themselves as cured.

Dr. Budd, in his lectures on diseases of the stomach, has described a form of inflammation, which may be included under the head of chronic, and in which coagulable lymph becomes effused into the cellular tissue under the mucous coat, which coagulable lymph, if not soon absorbed, hardens and contracts, forming a dense gristly tissue, binding the mucous membrane to the coats beneath. Inflammation

causing this result frequently occurs at the margin of a chronic ulcer of the stomach, but it often exists also, especially in the neighbourhood of the pylorus, independently of ulceration, or any other permanent change of texture in the mucous membrane. In such cases, the lymph is generally effused pretty evenly about the pylorus and leads to the formation of a gristly ring or band, which, by its contraction, permanently narrows the orifice. He states that this form of disease seldom occurs till near the age of forty, and is almost invariably the result of intemperance in drunkards; in these cases, the pyloric orifice becomes gradually narrower, and the action of the muscular fibres near this part is impeded, so that the stomach seldom empties itself completely, and the acid residue of digestion in it ferments, causing heartburn, sour eructations, flatulence, and vomiting. The stomach continues to grow larger, and as its capacity augments, the vomiting may become less frequent, though a greater quantity is thrown up at a time, and eventually the disease destroys life by impeding the passage of food into the intestine. This disease has been mistaken for carcinoma, as it produces similar symptoms to those of cancer of the pylorus, but is distinguished from it by its slow progress, by the absence of hemorrhage, which frequently occurs in cancer, by there not being any perceptible tumour, and by its not having a tendency to disseminate itself and infect neighbouring parts. In the early stage of this disease our treatment should be directed to reduce inflammation, and promote the absorption of effused lymph, leeching, the cautious administration of mercury, followed by iodide of potassium, and counter-irritation will promote those objects, but the proper regulation of diet, and the giving up of intemperate habits, is of the greatest importance towards insuring a complete recovery.

Under the head of chronic gastritis, we may consider an affection of the stomach which has been denominated gastrorrhœa, and is characterized by the copious vomiting of a clear, glairy fluid, usually insipid, resembling in appearance the uncoagulated white of eggs, or simple mucus; the discharge occurs most frequently in the morning fasting, but may take place at any time, and it is a curious fact, that this fluid is often thrown up after meals, without a simultaneous discharge of food from the stomach. Andral has recorded the case of a woman who vomited every day about four pints of this glairy fluid, and yet never discharged either food or drink; on dissection there was a general thickened state of the mucous membrance of the stomach, which was of a brownish colour, and the follicles were remarkably developed. This condition appears to depend on a catarrhal state of the stomach, and though it may occur under the same influences as ordinary catarrh of the bronchial mucous membrane or conjunctivitis, yet it is more frequently observed as a consequence of congestive disease of the portal system. The mucous membrane becomes congested, presents a swollen, œdematous, or granular appearance, and is covered with a thick tenacious layer of mucus, which is sometimes found to be

alkaline in its reaction, is with difficulty washed off by water, and consists of mucus-corpuscles, nuclei, and epithelium; Dr. Jones considers this fluid to be analogous to the secretion of mucus which takes place in ordinary catarrh; but I think that it is chiefly connected with a disordered condition of the mucous follicles, which relieve themselves by a copious exudation of mucus; it is a troublesome form of disease, but seldom fatal, unless in old persons, when the pyloric region is the part found to be chiefly affected. The chief symptoms complained of are, a total want of appetite, a sense of weight and distention in the epigastric region after taking the smallest quantity of food, pain between the shoulders, occasional vomiting, constipation, the tongue is coated with a thick layer of white mucus, there is a constant bad taste in the mouth, patients suffer from acrid flatulent eructations, cold feet, and a languid circulation.

This disease is often met with in drunkards, and is then generally associated with the disturbance of the nervous system, induced by hard living, and characterized by sleeplessness, or sleep disturbed by uneasy dreams, a wretched feeling of exhaustion in the morning, and a tremulous state of the hands and tongue. Similar symptoms may, however, occur in persons of temperate habits; but whose nervous systems are exhausted by mental anxiety, want of sleep, or deficiency of food, as these influences will cause hallucinations, tremor of the hands and tongue, total loss of appetite, and vomiting, just as much as the intemperate use of spirits. This affection is also common among the women of large towns, who are overworked, badly fed, and often addicted to intemperance.

In the treatment of this disease, you must first remove the exciting cause, make them renounce intemperate or irregular habits, adopt a regular and nutritious diet, take every morning, fasting, a small tumbler of cold water, or tepid, if it is more agreeable, and follow that, after about half an hour, with an ounce of infusion of gentian, quassia, chiretta, or calumbo, which may be taken with a drachm of tincture of the same two or three times a day, a short time before meals. As there is generally much bilious congestion, with constipation and flatulence, give five grains of inspissated ox-gall, with three of extract of rhubarb, and three of compound galbanum pill at night. Opium is one of the most efficient remedies in this disease, as the appetite generally returns when the nervous system has been refreshed by sleep; so the best way to give it is in a full dose at night. I have used the tinctura cannabis indicæ, combined with aromatic spirit of ammonia, in one case with benefit, where it not only corrected the irritability of the stomach, but also allayed the wretched sinking sensation which the drunkard suffered from when deprived of his habitual stimulus. In all these cases you must make them take solid nourishing food, for no medicines can have any good and permanent effect till the stomach is able to digest solid food. Dr. Osborne, in his "Propositions on Diseases of the Stomach," published in the 'Dublin

Medical Journal,' makes some good observations on the diet and medicines suited to these diseases. He advises, "when meats are taken, they should be such as are most free from osmazome, as chickens, rabbits, sheep's trotters, &c., and should always be accompanied by boiled rice or other vegetable matter, in order to diminish the stimulating effect;" he also recommends the use of yolk of eggs, and cites a case of vomiting from a congested state of the stomach in the last stage of diseased mitral valve, in which great relief followed its use. He lays great stress on "dilution of the contents of the stomach," as he considers that the mucus is dissolved, and so renders the membrane accessible to astringent remedies; and he thus explains the efficacy of mineral waters in irritability and chronic inflammation of the stomach, as when an invalid at one of the spas drinks six or eight beakers of water before breakfast, and walks in the intervals, he washes out the mucus, and then the small proportion of salts held in solution acts on the membrane as sedative and astringent.

He advises that the patient should drink a tumbler of tepid water on an empty stomach, and use a little gentle exercise before taking his medicine, which ought to consist of astringents in sedative doses, such as the acetate of lead in solution, in doses of one or two grains, three times a day, to which may be added acetate of morphia if there be excessive secretion of sour fluid. Sulphate of zinc is useful in very chronic cases, also the mineral acids, and my friend, Dr. Hudson, tells me that he has used sulphate of alum in doses of ten grains with much success. The flower of mustard, simply mixed up with water, applied on a cloth, and suffered to remain on till smarting is produced, is a powerful adjuvant, interferes with no other remedy, requires no dressing except dry lint or wadding, and may be used every evening on going to bed. Nitrate of bismuth is a medicine which is very efficacious when the stomach secretes an unhealthy mucus, or when there is an excessive or untimely secretion of gastric juice, which is often met with in connexion with tubercular disease of the lungs, and also in infants when vomiting with exhausting diarrhœa results from the irritation of teething, or the use of improper food, or from the change of diet on weaning, the "weaning brash" of some writers, which is in many cases a gastro-enteritis. Bismuth appears to exercise a peculiar action on the mucous membrane with which it is brought in contact, restrains undue secretion, and has a sedative influence on the stomach, both by its direct action on the mucous membrane, as well as by modifying the excessive secretion of irritating fluids. The best way to give it is in water, lime-water, or milk, a short time before meals. Three, five, or ten grains, three times a day, is quite sufficient. It appears to soothe the mucous membrane over which it passes, and has little effect on the general system, except indirectly from the action it exerts on the stomach. It may, however, be advantageously combined with other medicines, which tend to assist its action, as prussic acid, opium, magnesia, or chalk. I have found its combination with dilute hydro-

cyanic acid of great use in allaying the morbid irritability of the stomach, which occasionally complicates acute inflammatory affections of the chest, and renders the convalescence tedious and dangerous. These patients sometimes suffer from constant nausea, great thirst for cold drinks, and vomiting, not only of food and drink, but also of quantities of very sour fluid, which often exceeds in amount the proportion of fluids actually swallowed. In such cases I am in the habit of prescribing a scruple of bismuth with twelve drops of dilute hydrocyanic acid, in six or eight ounces of either water, lime-water if there be diarrhœa, or in the solution of magnesia if the bowels are confined. Of this mixture an ounce, three or four times a day, will generally allay all the distressing symptoms, and improve the appetite and digestion.—*Dublin Hospital Gazette, Jan.* 15, 1856, *p.* 369.

[Dr. Handfield Jones, who has paid particular attention to the alterations in the solitary lenticular glands and follicles, says, that they may be most easily demonstrated by immersion in dilute acetic or muriatic acid, when they appear as dead white, opaque, round, or linear bodies, about the size of a pin's head, lying in the deeper part of the mucous membrane.]

These follicles are generally easily seen under a low magnifying power, and appear to constitute a great part of the mucous membrane itself; they open into minute pits on its surface, and in the normal state are full of secreting cells. In *fatty degeneration or atrophy* of the mucous membrane, they are filled with highly refracting particles of fat, but are destitute of secreting cells. These changes have been noticed by Dr. Habershon, who describes the symptoms to consist "in great prostration and exhaustion, with complete loss of appetite, a clean tongue, no pain, or thirst, or vomiting, but inability to take food." They have been observed in phthisis, struma, exhausting suppuration, often associated with fatty liver, and though probably secondary to these conditions, yet they occasion much distress, and are often the immediate cause of death. Dr. Habershon suggests, that the large sympathetic ganglia of the abdomen are principally concerned in the production of fatty degeneration of the follicles of the stomach, and hence its association with other degenerative changes. Some well marked examples of *hypertrophy* of these *solitary* glands have been recorded by Dr. H. Jones, who considers "that their structure is of the nature of an interstitial growth, inducing atrophy of the proper elements of the tissue," and that "though it does not associate itself especially with any other morbid change, yet it resembles those diseases known as encroaching on the natural tissue by fibroid interstitial formation, and which occur in an unperceived latent manner, being often first recognized by secondary results. Cirrhosis of the liver, stenosis of the cardiac orifices, Corrigan's pulmonary cirrhosis, are typical instances of this kind;" and Bright's disease is, in his opinion, also of the same family. He considers that there is no necessary con-

nexion between this change and inflammation, and recommends the bichloride of mercury, with or without bark, internally; with this cod liver oil may be conjoined, and also baths of the Kreuznach waters, as they have been used with success in analogous conditions of the uterus, by Dr. Preiger.

Dr. Osborne, in his propositions, states, that "sour eructations, and vomiting of sour fluid, with a sense of distention in the stomach after eating, are indicative of irritation of the gastric glands," and advises six or eight drops of the tincture of opium to be taken half an hour before meals, as it "first produces its sedative action on the irritable glands, and then being subjected to the digestive process along with the food, appears to be deprived of its narcotic power before it passes into the intestines." These glands are also subject to ulceration, constituting the "gastritis folliculosa" of Cruveilhier, or the "hemorrhagic erosion" of Rokitansky, who descsibes them "as round or roundish spots of the size of a pin's head or a pea, or narrow elongate-streaks, at which the mucous membrane appears dark red, soft, bleeding, and presenting a depression in consequence of loss of substance or slight erosion." A red, dirty brown, or soot black coagulum is generally fixed in each depression, and this must be removed before the nature of the disease becomes evident. These ulcers vary greatly in number, and size; the whole of the stomach, with the exception of the fundus, may be studded with them, and marked with red or brown spots, according to the colour of the coagula. They may occur at every period of life, are not infrequent in children, and even in infants, of which Billard gives a very good illustration, and are found chiefly at the pyloric portion. They may occur as an idiopathic affection, but the more frequently consequent on some acute or chronic disease, especially if the patient has been a drunkard, and are generally marked by hemorrhage, which may be so slight as merely to streak the gastric mucus, or may amount to a considerable quantity (often resembling coffee-grounds), which consists of blood, acted on by the acid secretions of the stomach. In these cases there is usually a catarrhal state of the mucous membrane of the stomach, the appetite and digestion are impaired, there is often a thin white fur on the tongue, and a diffused soreness over the epigastric region, particularly after solid food, which is often rejected. These superficial ulcers, if neglected, or aggravated by intemperance, may become deep, but if properly treated they will heal, and the stomach be restored to its usual condition. Apply a few leeches to the epigastrium, and follow them up by counter-irritation; allow only mild drinks, such as milk, water, or ice, taken in small quantities at a time; but above all regulate the food, which ought to be restricted to farinaceous substances, and even when the diet is improved, it should be given so as not to irritate the stomach, but if pain persists, or vomiting continues to be excited by food, you must then give from a quarter to half a grain of nitrate of silver in pills, combined with powdered opium. If the bowels are costive, use enemata,

or prescribe aloes, or the compound colocynth pill, which acts chiefly on the large intestines. It is a curious fact, recorded by Dr. Budd, that Mr. Simon, of London, has caused bleeding ulcers, "resembling the linear hemorrhagic erosions of the human stomach," in the stomach of cats, by keeping them confined for three weeks in a dark place, but with a fair allowance of their usual food; so that we may infer these ulcerations were the result of enfeebling agencies, acting on the general system, and through it on the stomach. It is well to be aware of these facts, for, as Dr. Budd observes, "it is possible that confinement, with insufficient light, and other conditions unfavourable to nutrition, might have the same result in man."—*Dublin Hospital Gazette, December* 1, *p.* 321; *Dec.* 15, 1855, *p.* 339; *Jan.* 15, *p.* 369; *and Feb.* 1, 1856, *p.* 7.

41.—GASTRIC NEURALGIA AND GASTRIC ULCER.

By Dr. C. Handfield Jones, Assistant Physician to St. Mary's Hospital.

[The first case which the author mentions occurred in a woman aged forty; she had been ill about fourteen days with pain at the stomach, especially severe after food or drink. She had sickness and vomiting, and other symptoms of dyspepsia. The pulse was weak, tongue natural, and appetite good, but she dare not take anything for fear of the pain. She was desired to take exercise in the open air regularly every day; and for medicine, eight grains of citrate of iron and quinine three times a-day. Under this treatment she rapidly improved, and was soon quite well.]

The features of neuralgia were well marked in this case. The pain was severe, paroxysmal, increased more by liquid than by solid ingesta, unattended with pyrexia, or foul tongue, but with signs of languid circulation and debility. It occurred during the prevalence of neuralgic disorders. These phenomena were plain enough in themselves; but the past history of the occurrence of hæmatemesis, during a similar attack, might have made some practitioners hesitate. The idea would naturally present itself that as there had been (in all probability) ulceration before, so now it might again be in progress; and the very severity of the pain would, I think, to some, have appeared an additional argument in favour of this being the case. Now, there are not a few who can scarcely dissever in their minds the idea of inflammation from that of ulceration; and with whom the administration of tonics, especially applied to the ulcerated surface itself, would find little favour. They view the ulcer as a specially tender and sensitive spot, and conceive that the blandest food, and sedative or gentle tonic medicines, are alone fit to be brought into contact with it. I believe I have shown in my work on 'Morbid Conditions of the Stomach,' pp. 212, 213, and in the 'Medical Times and Gazette,' July, 28th, 1855,

that a much more decided line of practice may very often be followed with the best results. The view taken is that the perforating gastric ulcer is essentially the result of a local failure of nutrition, and not in any degree *necessarily* connected with inflammation. The chief point held in view is to bring the gastric mucous membrane into the healthiest possible state, and to promote the general strength and vigour as much as possible, in order that the reparative process may go on actively. The chief rule, therefore, to be observed respecting diet is that nothing should be taken which causes pain, while it is considered very desirable that the food should be as nutritious as possible consistent with good digestion. If the stomach can receive a moderate meal, it should be allowed a sufficient interval of rest before another—say five or six hours; and, during the early period of digestion, all bodily or mental exertion should be forborne. This latter rule especially I consider to be of the last importance. The object of medical treatment is, first, to arrest any catarrhal or other morbid action which may be going on in the general mucous surface; and, secondly, to invigorate the weakened organ and the whole system. For these purposes, a little counter-irritation, with sedatives and astringents, may be necessary at first; but, as soon as they can be borne, tonics should be administered, and in most instances, I think, they need not long be delayed. Acids and bitters, iron and quinine, and cod-liver oil, I have found of very great benefit, and their employment should be continued, together with all other invigorating means, such as change of air if possible, until such a degree of health is attained that it may be fairly presumed the reparative process has closed the breach of surface. The points I insist on are, that in most cases tonics are very useful to improve the health, and promote the repair of the ulcer; that they are not contra-indicated by the existence of an ulcer; and that, in many instances, they may be given almost from the very first. On these grounds, feeling sure that the iron and quinine was needed for the cure of the neuralgia, the very probable suspicion that ulceration also might have recommenced, only seemed to me to give additional reason for the same treatment, as I believed that it would benefit both morbid states, supposing them to co-exist.

Case 2. —— ——, aged 34, female, cook, admitted Dec. 12, 1855; of tolerably healthy appearance; no marked pallor. She suffered fourteen months ago from pain at the chest; never free from it since. Six weeks ago she brought up a quart of coagulated blood. Has generally had good health, but has suffered from inflammation of the eyes, which has ceased since the chest became affected. Tongue quite clean; bad appetite; no thirst; bowels rather costive; catamenia regular, but too profuse, weakening her; skin warm; pulse weak, rather sharp. She is much confined to the house; does not sleep well, from pain or incubus; feels very weak, but has violent pain at the lower part of the sternum, "inward," not increased on pressure, not worse after food; vomits up, after any exertion, clear water, without increase

of pain; feels much better when quiet; finds benefit from bottled stout, and brandy-and-water. She was ordered citrate of iron and quinine, ten grains, three times a day; and camphor, two grains; extract of hyoscyamus, five grains—every night.

Dec. 19. Decidedly better; has vomited only twice, and not at all the last two days; less pain at the chest; sleeps better. To continue the medicine.

[After this time she had more pain in her side, for which she was ordered half a grain of morphia three times a day, and a blistering plaster to the epigastrium. As the sickness still continued, five minims of dilute hydrocyanic acid were added to the mixture, and as this failed to give relief, she was ordered, strychnia, one-sixteenth of a grain; muriatic acid, one minim; water, one ounce three times a day. In a few days she was not like the same person: she rapidly improved, and was discharged at her own request.]

This case was very similar to the preceding, but was of a more acute kind. The existence of ulceration could hardly be doubted. The severe pain was not owing to the ulcer, but to neuralgic disorder, as positively proved by the effect of nervine tonics. The effect of over-exertion in aggravating the pain, and of rest in allaying it, is very characteristic of neuralgia, and seems to point to a weakened condition of the vis nervosa as at least part of the pathological state. The catarrhal flux, induced by the pain, probably depended on a paralytic condition of the vascular nerves; and the two phonomena, the pain and the flux, evidently find their analogues in a common sneeze. The failure of iron and quinine, which at first had done good, as well as sedatives (hydrocyanic acid and morphia), the error of applying a blister, and the immediate good effect of strychnine, are points worthy of notice. She was discharged sooner than she ought to have been, as, though the neuralgia was cured, it could not be thought that the ulcer was yet safely healed.—*Lancet, March* 22, 1856, *p.* 312

42.—ON THE NATURE AND TREATMENT OF PERITONITIS, FROM RUPTURE OR PERFORATION OF ONE OF THE HOLLOW VISCERA.

By Dr. James Stannus Hughes, Surgeon to Jervis-Street Hospital.

The following are the principal indications which demand attention in the treatment of a case of traumatic peritonitis, accompanied by evidences of a rupture of one of the hollow viscera, viz.: Firstly. *The arrest of the peristaltic motion of the intestines, with a view of favouring adhesions and preventing fæcal effusion into the peritoneal cavity.* Secondly. *The adoption of measures for the purpose of subduing or circumscribing the rapidly progressive peritoneal inflammation.* Thirdly. *The withdrawal or cautious exhibition of fluid nourishment*

until the period of danger of their extravasation into the abdominal cavity shall have passed by.

The attainment of the first object, in the treatment of traumatic peritonitis, can best be effected by the administration of opium, or some of its preparations, in full and repeated doses. Some years since, Mr. Bates, of Sudbury, directed the attention of the profession to the great value of opium, both by the mouth and rectum, in severe peritonitis, where blood-letting was obviously inadmissible; and Dr. Graves, some thirty years ago, "treated successfully two cases of peritonitis after tapping, and occurring in patients of bad habit, by opium, without withdrawing a drop of blood; and, more lately, the same remedy in a case of peritonitis from effusion of purulent matter into the serous sac:" but to Dr. William Stokes, on the one hand, is the merit due of having been the first to prove that opium, when administered with boldness, has the power to save life in peritonitis from perforation of an intestine from previous disease; and to Dr. John Hart, late Professor of Anatomy in the Royal College of Surgeons in Ireland, are we, on the other hand, indebted for the proposal of administering opium in large doses, in cases of fæcal effusion into the peritoneum from rupture of an intestine, the result of external violence, *with a view of controlling the peristaltic action of the intestines.* The following are the details of the first case of peritonitis from perforation, treated successfully by Dr. Stokes, a case which is in every way interesting, but especially so to the practical physician, as being the first reported case of the kind, as far as I know, to be found in the annals of medicine. "A middle-aged man was admitted on the 27th of June, 1830, apparently in the last stage of peritoneal inflammation; the disease was of three days' standing; had supervened suddenly, in a few days after hypercatharsis induced by a large dose of glauber salts, and followed by long-continued exposure to cold. It was attended by several of the usual symptoms of peritonitis from ulcerative perforation of the intestine; the belly was swollen, and so exquisitely tender, that the slightest pressure made the patient utter screams. The countenance was Hippocratic, and the patient tormented with constant hiccup. Coldness of the extremities had commenced, and the pulse was weak and slow. Before the hour of visit, leeches had been applied to the belly, without relief; the patient was then ordered one grain of opium every hour. The next day it was found that the symptoms were improved. *The patient had not experienced the slightest coma, head-ache, or delirium.* The same plan of treatment was persevered in, the daily dose of opium being gradually diminished, until the 7th of July, when the convalescence having been completely established, the remedy was omitted. During this time diarrhœa set in for three or four days severely; this was treated by the application of a few leeches to the anus, and the use of anodyne enemata.

"The patient took in all one hundred and five grains of opium

(exclusive of that in the injections), without ever experiencing any of the usual effects of this substance, when exhibited in large doses."

Dr. Wood, Professor of Medicine in the University of Pennsylvania, has, in the following observations, whilst pointing out the treatment to be adopted in enteric fever, added his valuable testimony in favour of opium in cases of peritonitis from intestinal perforation:—"A case has recently come under the notice of the author, in which, during apparent convalescence from an attack of fever, when the pulse had become natural in frequency, and all the symptoms were favourable, the patient was suddenly attacked with violent pain in the right iliac region, extending over the right side of the abdomen, with great distention, exquisite tenderness on pressure, and extreme frequency of the pulse. It was the opinion of Dr. Gerhard, who was the attending physician, and myself, that perforation had taken place. We put the patient under the powerful influence of morphia, applied a blister to the abdomen, and had the satisfaction to see our patient ultimately recover."

Drs. Cusack, Patterson, Gooch, Churchill, and others, have spoken highly of the utility of opium in low puerperal peritonitis, and Dr. Stokes has suggested a trial of the same remedy in peritonitis from rupture of the bladder or uterus, traumatic rupture of the intestines, or after the operation for strangulated hernia.

The following is a case of acute peritonitis, with supposed rupture of the urinary bladder, successfully treated with opium, according to Dr. Stokes' suggestion, by one of our most eminent provincial practitioners, Dr. Mackesy, of Waterford; for the notes of the case, and the remarks thereon by Dr. Mackesy, I have to thank Dr. Stokes.

"January 25th, 1831. Robert Bennett, a blacksmith, æt. 28, of great muscular strength, employed at Knockmahon Copper Mines, had drank freely yesterday evening in the public house of the village. From time to time he neglected the urgent call to pass water, but at last was going out for that purpose with a distended bladder, when one of his companions caught him, challenged him to wrestle, threw him down, and fell heavily upon him. Immediately he was unable to raise himself from the floor, complained of most acute pain in the belly, and said something had burst within him. He was visited at once by Dr. Baker, of Bonmahon, who passed a catheter into the bladder and drew off about an ounce of bloody urine; no urine was found on his clothes, he was in profound collapse, and all his distress was referred to his desire and inability to pass urine; he had vomiting which distressed him greatly, and had a peculiar pinched expression of face, indicative of great anxiety.

"He was put in a warm bath, warm diffusible stimulants given him, and after some time an enema was administered.

"The injury occurred about seven o'clock in the evening. In about two hours, when reaction had set in, he was bled from the arm nearly *ad deliquium*, but without any decided relief.

"I was summoned from Waterford, and after hearing the foregoing details from Dr. Baker, I proceeded with him to visit Bennett, about twenty-four hours after the receipt of the injury. He was lying on his back, his knees drawn up, with hoops extended across the bed to bear off the weight of the bedclothes, so exquisitely tender was the abdomen. The greatest anguish and distress were depicted in his face; refers all his distress to his inability to pass urine; belly prominent and tense, but he would scarcely allow a hand to be put near him; pulse 130, small; breathing hurried. I passed a full-sized gum-elastic catheter into his bladder; a small quantity of bloody urine came off; thirty leeches were applied over the pubic and iliac regions; warm fomentations over the whole abdomen as hot as could be tolerated, under oiled silk. A drain of blood to be kept up as long as the pulse and strength would admit, by leeches over the pubis. A draught of sixty drops tinct. opii was given him at once, and in two hours after a grain of opium in pill every hour to the eighth dose, unless sleep supervened. The catheter to remain in the bladder; a stop being adjusted, so as to prevent the instrument entering the bladder further than the eye of it.

"January 26th. Heard by letter from Dr. Baker that there was some mitigation of symptoms. He had taken a grain of opium every hour for six hours, when he was disposed to sleep; in an hour had another grain, and then slept for three hours, in a profuse perspiration, and expressed himself relieved on awaking. Takes gr. i. of opium every three hours; fomentations, &c., as before.

"January 27th. Visited Bennett. Countenance much improved; abdomen still tense and painful on pressure, but in a less degree. Has had a grain of opium every three or four hours; pulse 112, more developed; water passes through the catheter freely; not tinged with blood.

"Withdrew the catheter, and passed a new one. To persevere in all respects as before.

"Bonmahon is fifteen miles from Waterford. I did not again visit the case. Dr. Baker continued the catheter to the seventh day. He then passed it every four hours for a few days, when Bennett was able to relieve himself naturally. He gradually recovered, and in seven weeks returned to his work.

"This man had every symptom of rupture of the urinary bladder, with *the exception* of his having *recovered from the injury*. Had he died, and no *post-mortem* examination made, no doubt could have existed as to the nature of the lesion.

"The intensity of the collapse, setting in immediately on receipt of the injury, the rapidity with which acute peritonitis superveued, the sensation of something having given way internally, followed by the small quantity of bloody urine, drawn off by the catheter, are all quite characteristic of the injury.

"The practical part has reference to the efficacy of opium freely

administered, up to the point of producing narcotism. That the happy issue of this most formidable lesion was to be attributed to its use, as far as human agency goes, I have not the slightest doubt.

"In conversation with Bennett, I ascertained that in the early part of the evening he had drank freely of punch, and had been out several times to pass water. For more than an hour previous to the injury, finding (to use his own term) his head going, he had only drank warm water and sugar, so that in all probability the urine contained in his bladder, when ruptured, was of a less irritating quality than usual."

Dr. Churchill has furnished me with notes of the following case which occurred in his practice many years ago. "A woman had hysteritis after delivery, from which she did not perfectly recover, and two or three months after, in making some exertion, she felt something give way, and was immediately attacked by acute peritonitis. Dr. Haughton saw her first, and adopted the usual treatment, but without any apparent relief; we then put her on opium, gr.j. ter quaterve in die, which was followed by an amendment of all the symptoms, and ultimate recovery. I fear to state how much opium she took, but I ought to state, that the debilitated condition in which she was when I first saw her, precluded any more active measures." Dr. Churchill adds that he took the hint as to the treatment that should be adopted in the foregoing case from Drs. Graves and Stokes.

Opium is, therefore, to be given in full and repeated doses, in cases of traumatic peritonitis, where grounds exist for believing that a rupture of a hollow viscus has taken place, and for the reasons stated the patient must be held steadily under its influence until the period of danger shall have elapsed. The usual manner of giving opium in these cases is to administer it in doses of from half a grain to one grain every hour in the form of pill, watching, of course, its effects with the greatest anxiety, the patient being frequently visited whilst under the opiate treatment, for although the generality of persons labouring under this disease tolerate opium wonderfully well, all do not do so. Should incessant vomiting be present in a case of the kind, we must then order the opium in the form of enemata in suitable doses, and at proper intervals.

The second indication in the treatment of traumatic peritonitis, accompanied by symptoms of rupture of one of the intestines when the result of *external violence*, can, according to my experience, be best accomplished by the full but judicious administration of mercury, by local depletions, and lastly, by extensive counter-irritation.

I may possibly here be asked, If opium, uncombined with any other remedy, has proved itself capable of curing peritonitis from perforation of an intestine, the consequence of previous disease, why not trust it alone in peritonitis following on rupture of an intestine from external violence? A moment's reflection will, however, satisfy any impartial person that the foregoing cases are essentially different in character,

inasmuch as in the former constitutional complications of a debilitating character are necessarily present, none in the latter, and that consequently our remedies must, to be successful, be pushed with much more vigour in the latter than in the former.

In stating my conviction that mercury, pushed to salivation, is indispensable for the purpose of arresting or circumscribing acute traumatic peritonitis, the consequence of rupture of an intestine from external violence, I am well aware that the opiate and mercurial plans of treatment are considered incompatible in such cases by some, who assume that mercury will, if given early, prevent the effusion of lymph necessary for the union of the injured intestine, or its adhesion to a neighbouring viscus, and that if administered late it will cause premature absorption of the "salutary adhesions," should such already have been established. I trust, however, that I shall be able to show, by a reference to the following facts, that the prejudices entertained against the administration of mercury in traumatic peritonitis, accompanied by a rupture of the intestine, are purely hypothetical:—

1stly. Innumerable pathological investigations are proved, beyond doubt, that in rupture of the intestines lymph is effused long before the system can be brought under the influence of mercury, which cannot, according to my experience, be effected, even under the most favourable circumstances, much before the third day.

The following case, reported by Dr. Croker King, now Professor of Anatomy in the Queen's College, Galway, shows how very soon lymph may be poured out after a rupture of one of the hollow viscera:—

"*Rupture of the Small Intestine.*—Julia M'Donnell, aged 30, admitted June 12. Half an hour before admission she had been buried beneath the fallen roof of her cabin, from whence she was dug out with as much expedition as possible; but even in that short time, she had fallen into a state of collapse. Her limbs were cold, and her pulse imperceptible at the wrist. The only complaint she uttered was of pain in the left hip.

"The patient was put to bed—external warmth applied, and a warm stimulant administered. There were no outward marks of injury, except some slight contusion about the face. In the evening she became extremely restless; the pulse, although perceptible, was so small and rapid, as to be countless; the respiration very hurried; the bowels not moved since the accident; the urine freely voided; complains of pain in the right iliac region and back, but nowhere else; no tenderness of abdomen on pressure.

"Habeat tinct. opii gutt. xxx. instanter.

"13th. Passed a very restless night; continually tossing about in bed; no sleep.

"Eight o'clock, A.M. Pulse scarcely distinguishable; respiration panting; countenance sunken; complains not of pain, but of general distress and oppression; abdomen tympanitic, and tender on pressure

in the right iliac region; tongue white and dry; stomach undisturbed; mental faculties unimpaired.

"Ordered continuous warm stupes to the abdomen; an enema, containing 30 drops of laudanum, immediately, and a glass of wine, with 30 further drops, every second hour.

"Twelve o'clock, morning. Enema rejected, but wine and opium retained on the stomach; temperature of limbs sinking fast; cold, clammy perspiration on face and trunk; pulse gone at wrists; intellect still perfect; craved more wine, which on being given, rallied her for a moment, but she rapidly sank again, and after one or two convulsive gasps, expired—the event being only twenty-six hours from the receipt of the injury.

"It was in virtue of an early diagnosis, made by Dr. Houston, of rupture of an intestine, and of the sinking state of the patient, that the plan of treatment by opium and wine was adopted. No treatment however, could have saved life.

"*Examination, twenty-four hours after death.*—The ilium was ruptured within four feet of its termination. Two small openings existed close to each other, from which the contents of the intestine had escaped into the peritoneal cavity. The more fluid parts of these contents had gravitated into the pelvis; the more consistent parts were spread over the coils of the ilium in the right iliac fossa. The peritoneum, at this place, was highly vascular, *and the intestines were glued by soft lymph.* The inflammation in the more remote parts of the peritoneum had made comparatively little progress."

2ndly. Mercury, when pushed to salivation in the analogous cases of wounds of the more vital organs and their serous membranes, as for instance, the brain and arachnoid, the lungs and pleuræ, possesses an unquestionable power of arresting the inflammation of the injured viscera and their investing membranes, without either averting the effusion of lymph necessary for the union of the wounded organ, or of causing its untimely absorption; thus you recollect that within the last month I pushed mercury to salivation in Keegan, No. 3 Ward, who was admitted with a wound and subsequent inflammation of the right lung and pleura, consequent on a severe fracture of three of the true ribs, the result of a violent kick of a horse, under which treatment the man rapidly and perfectly recovered.

3rdly. The great majority of hospital surgeons of the present day, encouraged by experience, very properly prescribe mercury after all severe operations involving the peritoneum, as, for example, in cases of large strangulated herniæ, as a prophylactic agent against the supervention of inflammation, without the slightest apprehension of either preventing or delaying thereby the union of the wound unavoidably inflicted for the preservation of the patient's life. Thus for instance, Mr. Robert Adams, of the Richmond Hospital, has published a case, which he treated in conjunction with Sir Philip Crampton and Mr. Elliot, strikingly illustrative of the value of mercury as a prophy-

lactic against inflammation involving the peritoneum. The case alluded to was one of strangulated congenital hernia of extraordinary size, in which, from the extent of the wound (necessarily six inches in length), and from the exposure of three feet of intestine, subjected of course to handling in their reduction, mercury was freely administered with a view of meeting the inflammation so likely to attack the peritoneum after such an operation, under which treatment the case proceeded to a favourable termination. One of the aphorisms laid down by Mr. Adams at the conclusion of the foregeing case runs thus:—"That in the subsequent treatment of the case, it is well to anticipate the symptoms of acute peritonitis by the treatment which is usually found serviceable, when it has actually appeared, namely, by the active exhibition of mercury."

In another case of strangulated femoral hernia which I visited, in consultation with Dr. Symes, of Kingstown, we pushed mercury to salivation, after the reduction of the hernia had been accomplished by operation, whilst the patient was under the influence of chloroform, and the woman made an unusually rapid recovery, although the hernia had been in a state of strangulation for six days before Dr. Symes was called in. The particulars of the foregoing case were brought by me before the meeting of the Surgical Society of Ireland, Dec. 18th, 1847, and published in the 'Dublin Medical Press,' Jan. 5th, 1848.

4thly, and lastly. The rapid and permanent union of a wound, when taking place in a person in a state of salivation is, in my opinion, a conclusive proof that the administration of mercury neither interferes with nature in the repair of this class of injury, nor causes its subsequent disunion.

While strenuously advocating the employment of mercury in the treatment of acute traumatic peritonitis, accompanied by symptoms of rupture of an intestine, the result of external violence, it is my duty to inform you, that unless its administration is carried out with the greatest judgment, instead of benefiting the patient, the mercury may destroy all chance of his recovery by exciting diarrhœa, the occurrence of which would obviously neutralize the beneficial effects of opium, by rousing the peristaltic action of the intestines, and favouring thereby extravasation of the contents into the peritoneal cavity. For these reasons the mercury should be introduced into the system chiefly by means of inunction.

[As illustrations of the successful combination of the opiate and mercurial plan of treatment, we may mention the following cases, which were accompanied by all the necessary symptoms. The first is that of a dress-maker, aged 32, who while out driving, was thrown violently from the carriage, and when laid on the ground received a very severe kick from the horse in the right side of the abdomen. She vomited a large quantity of blood, and was insensible for half-an-hour.]

On examination, some hours after the accident, Mr. Hughes found the abdomen extremely tympanitic, being apparently distended to the highest possible degree, and exquisitely tender to the touch; there was a large ecchymosis at the seat of injury, the extremities were cold, the pulse weak and compressible. Urine secreted in small quantities, and expelled with great difficulty and pain. Ordered twenty-four leeches to the abdomen, and pills of calomel and opium, the former to lay a foundation for mercurialization, the latter to maintain the bowels in a state of rest. After a few of the foregoing pills had been given, the calomel was withdrawn, and opium, in one grain doses, was administered every hour, mercurial ointment being at the same time freely rubbed into axillæ and inside of the thighs. Thirst to be quenched by placing a small piece of Wenham lake ice in the mouth from time to time. On the evening of the second day of treatment the patient had taken ten grains of solid opium without any of the unpleasant effects of that remedy having evinced themselves, when vomiting of a very obstinate character having re-appeared, nothing being retained on the stomach, forty drops of the tincture of opium were administered in two ounces of the mucilage of starch in the form of enema, and repeated at suitable intervals, so as to keep the patient steadily under the opiate influence. On the third day the patient was alarmingly ill, and gave up all hope of her recovery, the vomiting having persisted, assuming a gulphing or regurgitating character; the stomach continued intolerant of pressure, and the tympanitis remained unchanged. On this day the patient was seized by loose evacuations from the bowels containing a quantity of coagulated blood, which however, were soon controlled by the opiate enemata given at shorter intervals. Ordered three ounces of port wine to be given in spoonful doses occasionally; continue the ice. On the morning of the fourth day an amendment in all the symptoms became for the first time apparent; the vomiting ceased, the abdomen became less tympanitic and less painful, and the pulse improved in character. On the same day the patient came fully under the influence of mercury, as evinced by mercurial fœtor and slight insalivation.

On the sixth day the pulse rose in frequency, and abdominal pain increased, in consequence of which mercurial ointment was again freely rubbed into the axillæ, and a large blister was applied to the abdomen.

From this date the patient gradually but steadily recovered, having for several days been kept under the full influence of opium, during which period she took ten grains of solid opium, and 840 drops of laudanum. There was a perfect absence of abdominal frottement, all through, in Mrs. Brown's case. For several days after her recovery, a circumscribed hardness corresponding to the seat of injury could be detected, at which part percussion elicited a dull sound, symptoms obviously the result of the effusion of organized lymph.

Case 2.—J. J. Gibbs, æt. 35, a recruit, was carried into Jervis-street

Hospital, on the 23rd Dec. 1854. *History of the Case.*—The patient having become intoxicated whilst spending his bounty money, staggered off the footway and fell under a heavily loaded float, the wheel of which passed obliquely over his abdomen. Mr. Hughes having been immediately sent for, found the man in a state of collapse, lying partly on his left side, with his knees drawn up, his thighs being flexed; the abdomen was extremely tympanitic and sensitive of pressure; pulse 105, weak; features pinched, and expressive of great suffering; the pain which at first was referrible to the left side of the abdoment rapidly extended over the entire of the cavity; soon after admission, the patient was seized by an intense and prolonged rigor. Leeches were applied to the abdomen, and the patient was ordered calomel guarded by opium. In the course of this evening, the patient was seized with distressing vomitings, and the urine, which was scanty and high-coloured, was voided with extreme difficulty and pain. Ice to be given in small quantities to slake thirst, which is excessive. On the second day, the pain and other symptoms having remained unmitigated, additional leeches were applied to the abdomen; the calomel was now withdrawn, but the opium was continued in half grain doses, mercurial ointment being at the same time freely rubbed into the thighs and axillæ.

The foregoing treatment was continued till the fourth day, when the abdominal pain became less severe, and the vomiting altogether ceased. On this day, slight mercurial fœtor and insalivation were detected. Before the hour of visit, the patient was seized with loose evacuations from the bowels, which proved, on examination, to consist of pure liquid blood, in consequence of which two grains of the acetate of lead were added to each of the opiate pills, and a large blister was applied to the abdomen. Under which combined treatment the hemorrhage soon ceased.

Fifth day. Patient considerably improved; abdomen much less tympanitic and more tolerant of pressure; mouth now fully salivated; continue the opiate pills. From this date the patient progressed to a recovery, and left the hospital on the 16th of January to join his regiment.

At no period of Gibbs's illness was abdominal frottement detected.

It is quite possible that some persons may argue, that in assuming that the foregoing specimens of traumatic peritonitis were accomplished by a rupture of one of the hollow viscera, that such a conclusion has been gratuitously arrived at, and although it is difficult to pronounce with certainty upon the exact nature of the injury in either case, yet few practical surgeons, who have paid attention to injuries of the abdomen will, I am convinced, doubt the probability of the existence of a rupture of one or other of the hollow intestines, in either of the foregoing cases, when they take into consideration the group of symptoms which were present in each of them, namely:—*the sudden depression of the vital powers; the rapid supervention of peritonitis; the highly tym-*

panitic state of the abdomen; the exquisite tenderness of every portion of that cavity; the absence of frottement; and lastly, the occurrence of intestinal hemorrhage.

You all must recollect how different were the symptoms in Mrs. Brown's case, as compared with those which were present in that of Cullen, lately in this hospital, under the care of my colleague, Dr. Power. Cullen was admitted. you know, labouring under traumatic peritonitis, having been crushed in the abdomen between the shafts of two drays which were passing rapidly in contrary directions, but there were no symptoms of rupture of an intestine present in Cullen; thus in his case there was no sudden prostration of the vital powers, no vomiting or difficulty of passing water; no hemorrhage from the stomach or bowels; and finally, in his case, the abdomen, instead of been suddenly distended and tympanitic, was, on the contrary, at first retracted. Brown's and Cullen's cases, which occurred about the same time, proved highly valuable to us, as they served to point out most forcibly the differential diagnosis of the two forms of traumatic peritonitis. There can but little doubt be entertained that the opiate treatment proved highly advantageous in Browne's and Biggs' cases, not only by lessening the shock to the system and controlling the peristaltic action of the intestines, but likewise by gaining time for the carrying out of other curative measures.

It is, however, extremely worthy of your recollection, that in neither Browne's nor Biggs' cases did any marked amendment take place, notwithstanding the liberal administration of opium, until mercurial action had set in, as proved by the presence of mercurial fœtor and insalivation, which became established in both cases on the fourth day.

In both Biggs' and Browne's cases, we commenced the mercurial treatment by the administration of calomel combined with opium, so as to lay a foundation, as it were, for rapid mercurialization, after which the calomel was withdrawn, when we had recourse to inunction, mercurial ointment being rubbed in freely, until salivation was fully established, opium being of course at the same time administered in sufficient doses, and at proper intervals, so as to maintain the system steadily under its influence, till the period of danger had elapsed.

It may not be out of place here to mention, for the information of the junior portion of the class, that the conjoint exhibition of opium and mercury, as antiphlogistic remedies, was first introduced into practice by Dr. Robert Hamilton, of Lynn Regis, and subsequently adopted and recommended by Dr. Armstrong of London, in his 'Practical Illustrations of Typhus Fever;' since which period they have been almost universally, at least in Great Britain and Ireland, resorted to in a combined state, in various inflammations of a serious character, but more especially in those involving the organs contained within the cavities of the chest and abdomen.

In both Biggs' and Browne's cases, as well as in that recorded by Dr. Stokes, looseness of the bowels set in on the fourth day; in both

of the former patients, blood was passed on the same day by the rectum; in Biggs' case, the blood was liquid, in Browne's coagulated. Some persons are of opinion that when the evacuated blood is liquid in ruptured intestines, it is a proof of the injury to the alimentary canal being low down, and that, on the contrary, a discharge of the coagulated blood is evidence of an injury having its seat higher up, near the stomach; but I agree with Lisfranc, who says, that this distinction cannot be relied on.

Although, owing to the great depression of the vital powers, which invariably occurs in traumatic peritonitis, the consequence of a rupture of an intestine from external violence, depletion to the same extent as would be requisite in some of the other forms of peritonitis is contra-indicated, yet the application of leeches to the abdomen, in both Browne's and Biggs' cases, was attended with apparent benefit. I have often thought that there appeared to be some truth in an opinion which had some weight with the ancients, viz., that local depletions exercise more salutary influences over membranous inflammations, than general blood-letting by either arteriotomy, or venesection, inasmuch as the former acts more energetically on the capillaries of the parts implicated, than the latter.

The application of blisters to the abdomen, in the cases already cited, were thought to be of service.

As the recoveries in Biggs' and Browne's cases were, in my opinion, attributable to a proper combination of the opiate and mercurial plans of treatment, assisted by local depletions and counter-irritation, I strongly recommend the adoption of these measures in similar cases.

I would, in conclusion, observe, that in all cases of traumatic peritonitis, in which a rupture of an intestine is believed to exist, the patient should be enjoined absolute rest in the horizontal posture, and that drinks should be denied the sufferer for the first few days, or at least admitted only, as suggested by Dr. Wood, "in such quantities as may insure them against passing through the pylorus," thirst being, as in Browne's and Biggs' cases, slacked by means of small pieces of Wenham lake ice placed on the tongue from time to time.—*Dub. Hospital Gazette, Feb.* 15, *p.* 19, *and March* 15, 1856, *p.* 49.

43.—*Medicinal Properties of Charcoal.* By James Bird, Esq.—Pure charcoal is known to possess two singular properties, first, the power of absorbing gases to an almost incredible extent, and secondly, the capability of rapidly oxydizing any dead animal or vegetable substance placed in contact with it, as explained by the experiments of Dr. Stenhouse and others. As charcoal is not chemically affected by either acids or alkalies, and is quite insoluble, its admixture with other substances is not incompatible, so that it may be combined with any other kind of medicine, *ad libitum.*

It is a powerful absorbent of fluids, whether aqueous or aeriform; and as it undergoes no change in the human stomach, it may with great truth be described as the only pure absorbent we possess, for the same cannot be said of æther, lime, magnesia, bismuth, or any other mineral absorbent, all of which form salts with the acids they meet with, sometimes to the complete subversion of all their original properties, while the vegetable or farinaceous absorbents, such as flour, starch, gum, &c., are changed by digestion, giving off frequently offensive gaseous emanations as the results of mal-assimilation.

Charcoal is, therefore, recommended as a pure and effective absorbent, applicable either alone, or in combination with other remedies, to the cure of a large number of the acute disorders of the mucous surfaces of the alimentary canal, and also of those of the uterine passages. and particularly in those instances where the secretions are inordinate in quantity, or offensive in condition.

It may, perhaps, induce a more extended trial of charcoal powders if a few instances were named in which the remedy has proved eminently serviceable. In the exquisitely-painful small ulcers within the mouth, on the inner surface of the lips or cheeks, which, at irregular intervals prevail to some extent, and are extremely troublesome, the following wash will be found an excellent remedy:—

℞. Pulv. carb. ligni pur. ʒij.; mel. rosæ ʒi.; decoct. cydoniæ ʒiij.; aq. dest, ℥iv. M. Ft. lotio sæpe adhibenda.

This lotion is also useful in excessive ptyalism; it speedily moderate, the discharge, and instantly corrects its fetor, and its application is extremely soothing and agreeable. The same may be said of it when used as a gargle in ulcerated sore-throat, the sloughs separating rapidly and easily, leaving a healthy surface underneath.

In the earlier stages of diarrhœa, a mixture composed somewhat as follows speedily gives relief:—

℞. Pulv. carb. ligni pur. ʒj. ad ℈iv.; mucil. acaciæ ʒij.; syr. aurantii, tr. cardam. co. āā. ʒiv., aq. dest. ʒiij. M. Sumat 4 drachmas 3tiâ vel 4tâ q.q. horâ.

In the bowel affections of children, accompanied with worms, powdered charcoal, in doses of 10 to 15 grains, with one grain of ipecacuanha powder, and from 3 to 5 grains of rhubarb, taken at bed-time, acts like a charm, correcting disordered secretions with certainty and comfort, and promoting a healthy tone and action. In gastralgia and gastrodynia, charcoal powder, in doses of 30 or 40 grains, three times a-day, in water, seldom fails to give relief; and, in cases of severe tenesmus, accompanied by bloody or mucous stools, an injection into the lower bowel of one drachm of charcoal powder in a small quantity of thin arrow-root or gruel has been found to give almost instant relief.—*Med. Times and Gazette, Dec.* 15, 1855, *p.* 606.

44.—*Nux Vomica as an Aperient.*—Among the conditions over which nux vomica, and its active principle, strychnia, possesses most useful powers, is that of habitual constipation, from muscular atony of the intestinal tube. At the City Hospital for Diseases of the Chest, we observe that Dr. Peacock and Dr. Andrew Clark are both in the habit of frequently resorting to it for this purpose. It is generally given in in combination with the compound rhubarb pill, and in doses of the extract of from a sixth to half a grain. Of itself it can, perhaps, scarcely be deemed an aperient,—that is, it does not so much excite peristaltic action, as supply tone to the weakened muscular coat, by which it is enabled to respond efficiently to other irritants. Hence the need for combination with rhubarb, aloes, or some similar drug. Dr. Peacock mentioned to us a case under his care in St. Thomas's Hospital, in which a man of feeble intellect, and torpid nervous system generally, had derived great benefit from its employment. At first, the bowels were obstinately costive, and lavements produced no action; but since the use of the nux vomica (twice daily, gr. ss.) they have so far increased in power and susceptibility, that simple injections are quite sufficient, and procure all the action that is necessary.—*Med. Times and Gazette, Nov.* 10, 1855, *p.* 471.

45.—CHRONIC ULCERATION OF THE RECTUM.

By Dr. Christopher Fleming, Surgeon to the Richmond Hospital.

[A public van-driver, aged 56, had suffered from symptoms resembling chronic dysentery, for five months. His stools were thin and slimy, and were often deeply coloured with dark blood. His general health did not materially suffer; the constitutional symptoms of dysentery were wanting; the abdomen was neither tense nor tender, but his pain was confined entirely to the rectum.]

Proceeding to examine the rectum, I perceived nothing at or about the anus to excite the suspicion of disease within the gut. There was only visible a small external hemorrhoid, but it was of no moment. On now introducing the finger, when it reached to about the second joint, a sensation was communicated, as if the rectum was loaded with hardened fæculent masses, and after the action of a full enema, this same sensation was present. On more close examination I found that this arose from the uneven border of a deep and excavated ulcer which occupied the back wall of the gut; that the circumference of this ulcer was not less than that of a half-crown piece, and that the base of it, when pressed on, was equally hard and irregular, the remaining portion of the bowel being, as far as could be ascertained, perfectly healthy. I admitted this man into the hospital—kept him as much at rest as possible in the recumbent posture, and put him on mild nutritious diet. His bowels were regulated by the exhibition of small doses of castor oil, and occasional emollient enemata; a slight mercurial effect

was produced by moderate use of blue pill and Dover's powder combined; this was followed by iodide of potass and sarsaparilla, and hip baths and astringent or anodyne injections were administered as required. At the expiration of a month, an amount of benefit was experienced which was surprising; the local irritation materially subsided; the acts of defecation were stated as being free from uneasiness, and of much less frequent occurrence; the dark, coffee-coloured discharges of mucus and pus remarkably diminished; and improvement took place to such an extent, that the man, after a month, desired to leave hospital and return to his work. With respect to the ulcer, no satisfactory change was effected, as ascertained by touch—its distance from the anus, and its situation, not admitting of any satisfactory view with the assistance of the speculum. The same local characters remained, it had not apparently increased in extent, but the hardened and irregular edges and surface were distinctly traceable by the finger, yet decided diminution took place in the quantity and quality of the discharge; the former was much less, and the amount of blood in the latter very trifling, and, moreover, the man was not disturbed at night as heretofore, and even throughout the day he was, from his statement, tolerably free from annoyance.—*Dublin Hospital Gazette, Dec.* 1, 1855, *p.* 326.

46.—*Case of Piles, in which an operation was followed by a Fatal Result.* By Henry Smith, Esq.—[The patient was a man aged fifty-six, of weak health, and was much troubled with protrusion of the lower portion of the rectum. He suffered so much pain from this and from a pile about as large as a cherry, that it was determined to remove the pile by ligature.]

A needle was inserted through the base of the pile, which was firmly tied, and then cut away. It was found to consist of cellular tissue, with a large vein in the middle. As no fears of hemorrhage were entertained, the ligature was removed, and the patient for two days appeared to be going on well. At the end of that time, however, symptoms of fever presented themselves, and subsequently swelling in the left elbow-joint, and erysipelas of the hand, thigh, and face. He died at the end of eight days. No post-mortem examination could be obtained, but Mr. Smith had little doubt but that he died of phlebitis, and suggested that nitric acid was a safer and quite as effectual a remedy, as the ligature and knife in these affections. He knew that some surgeons of eminence had stated that they had never seen any dangerous consequences from these operations, but numerous fatal cases had undoubtedly occurred.—*Lancet, Feb.* 2, 1856, *p.* 129.

47.—*Treatment of Tænia, by the Oil of Male Fern* By Dr. W. W. Gull, Guy's Hospital.—This indigenous plant, the *Lastræa Filix mas* of modern botanists, has been known as a vermifuge since the

days of Dioscorides. About five-and-twenty years ago its efficacy was confirmed by Peschier, of Geneva, in several hundred cases; but it does not appear to have attracted much attention in this country until noticed by Dr. Christison in the 'Edinburgh Monthly Journal' for 1852. In the following year a paper appeared by Dr. Christison in that journal, giving the results of his experience in upwards of 20 cases, in all of which, without exception, the worm was discharged after a single dose. Dr. Gull's cases amply confirm the previous statements of Peschier and Dr. Christison, and show that an indigenous weed equals, if it does not surpass in efficacy as a vermifuge, the vaunted kousso of Abyssinia, the turpentine of America, or the pomegranate of the Continent. The preparation employed was the ethereal tincture of the rhizome, in doses of from one and a half to two drachms, in a mucilaginous draught, occasionally followed by a saline laxative; which last, however, Dr. Gull does not consider necessary. In all Dr. Gull's 50 cases, as well as in many others treated by his colleagues, the remedy proved effectual. One patient had been labouring under tapeworm for eleven years, and had taken kousso six times. In 25, or one-half of the cases, we find the period mentioned which intervened between the administration of the drug and the expulsion of the worm. The average of all the cases was five hours and three-fifths. In eight out of 20 cases the head of the worm was found. There can be no doubt, then, of the efficacy of the male fern as an anthelmintic; but we still want information as regards the permanence of the cure which it effects. In five only of Dr. Gull's cases are we informed that the cure was permanent, whereas in six cases we are told that the worm returned within a short period.

With regard to the locality in which the patients lived, all came from low-lying districts on the south banks of the Thames. As to sex, 27 were females, 14 males, and 9 doubtful, but probably females; this would make 36 females to 14 males. As to age, 11 were under ten years, 6 from ten to twenty, 14 from twenty to thirty, 11 from thirty to forty, and 8 above forty.—*British and Foreign Med. Chir. Review, April, p.* 307.

URINARY ORGANS.

48.—ON PURULENT URINE FROM CHRONIC PYELITIS.

By Dr. W. R. Basham, Physician to the Westminster Hospital.

The value of the information to be derived by examining the chemical and microscopic character of the urine depends much on the care and accuracy with which these chemical and microscopic facts are applied to the condition and symptoms of the patient. The special characters of these deposits, if correctly interpreted, become highly significant and instructive, great aids to diagnosis, and the eventual

basis of treatment. The cause and nature of a dropsical condition of the system are at once recognised, when in albuminous urine there are found epithelial, fibrinous, or waxy casts of a tubular character, glandular epithelial cells loaded with fat, or blood discs with amorphous fibrin, stained with hæmatin. The pathology of dropsy with such concomitants differs materially from that in which the urine is free from such deposits. But, on the other hand, cases occur in which there is no dropsy—no anasarcous state, yet the urine contains albumen, to which is added the presence of pus corpuscles, minute membranous coagula entangling clots of blood, blood discs in abundance, and shreds of amorphous fibrine. If, in such cases, there be great irritability of the urinary organs, frequent micturition with pain referred to the neck of the bladder, perineum, or penis, a suspicion at once exists of disease of the renal organs very different in character from that which we predicate on the first example. It is, however, only by a cautious comparison of the symptoms experienced by the patient with these morbid products in the urine that a correct and satisfactory diagnosis can be obtained. The presence of pus corpuscles in the urine is not, alone, sufficient to induce suspicion of renal disease. In gonorrhœa, or other inflammatory affections of the urethra, in catarrh of the bladder, or gouty inflammation of this viscus, pus would be present in the urine. In stricture, in chronic gleet, membranous *débris*, often entangling minute clots of blood, may be, and often are, present, and yet no suspicion of renal disease from any such appearances would be warranted. It is therefore by a careful comparison of the sedimentitious matters in the urine with the general symptoms of the patient that we are enabled to arrive at a correct and intelligible diagnosis. I have been led to these remarks by reflecting on the cases of pyelitis, or inflammation of the pelvis of the kidney which are now in Burdett ward, believing that an interpretation of the means by which this diagnosis has been arrived at may be instructive and valuable.

The symptoms most characteristic of pyelitis are, rigors, with lumbar pains, sometimes dull and continuous, sometimes pungent and darting; often extending and becoming fixed at the crest of the ilium, or prolonged to the outside of the thigh, with numbness in the direction of the external crural nerve. Occasionally there is retractation of the testicle of the same side; there is frequent micturition, and great irritability of the urinary organs. The patient complains of pain in the perineum, or in the neck of the bladder, or feels a darting pungent sensation along the urethra, fixing itself in the glans penis till temporarily relieved by passing urine; the quantity passed rarely exceeds one or two ounces, and the urgency for passing this small quantity recurs at very short intervals of time. The pain in the bladder, perineum, or penis, is always relieved by micturition, and there is no difficulty or obstacle to the free passage of the urine.

The urine when first passed is cloudy, or even milky, but when set at rest, separating into two portions, an upper, clear, natural coloured

fluid, not ropy, but containing albumen ; a lower and distinct sediment of a yellowish colour, consisting of pus corpuscles, amongst which oftentimes may be seen minute fibrinous shreds or membranous flocculi, with a small coagula of blood attached. Earthy amorphous matter is also present in some cases. Hæmaturia, sufficient to cause discoloration of the urine may or may not have occurred; yet, in most cases, although the urine is not discoloured, scattered blood discs may be detected by the microscope.

If the disease be of a certain duration, there may be fulness and enlargement of the kidney of the affected side; for if a concretion becomes permanently fixed in the pelvis of a kidney, a partial obstruction of the ureter follows, and the usual conditions of an encysted and sacculated kidney have commenced. If, on the other hand, the calculus descends into the bladder, a train of symptoms sufficiently characteristic follows, which clearly indicate its descent into that cavity. The following case exhibits the symptoms of chronic pyelitis :—

W. M——, aged thirty-four, a groom, native of Suffolk, was admitted into Burdett ward. The ward-book states that he first began to complain, about three months since, of a sharp, pungent, fixed pain in the right lumbar region, which was followed by sensations as of extension of the pain downwards, in the direction of the bladder. At this time he passed his urine very frequently, and noticed that there was much sandy deposit in it. The pain and distress were always greatest before passing urine. After the gravel disappeared from the urine his symptoms became much aggravated, and he sought medical aid. He has never had rigors, nor has he known his urine to stop suddenly. On admission, his appearance did not indicate any amount of constitutional disturbance. He was of a spare habit of body, with the usual characteristics of those engaged in stable work. His chief symptoms related to the pain he suffered in the perineum and neck of the bladder, the frequent micturition, and the want of continuous sleep. The urine, when first passed, is cloudy and milky in appearance; it soon separates into two portions—an upper, pale, clear, lemon-coloured fluid, and a lower yellowish-white precipitate. The first is neutral to test paper, and is albuminous; the second presents before the microscope the usual characters of pus corpuscles. The bladder was examined, and there was no evidence either of calculus, stricture, or prostatic disease. The patient was stripped and a careful examination made of the abdominal and lumbar regions. No want of symmetry, no fulness, nor irregularity in the region of either kidney could be detected; deep-seated pressure caused pain in the region of the right kidney, extending, the patient says, downwards in the direction of the bladder. The tongue is clean, the appetite natural, and the bowels are relieved daily. The patient, when closely questioned, adheres to his first statement, that the pain and distress he experiences gradually acquire intensity till the urgency to pass urine can be no

longer restrained; that he rarely passes more than a tablespoonful, or at most a wine-glass, in quantity at a time; that relief immediately follows, but that uneasiness commences some fifteen or twenty minutes afterwards, and rapidly becomes worse till micturition again relieves him. He was ordered to be cupped, to be kept quiet, to be placed on a bland and simple diet, and the infusion of buchu to be taken three times daily, and an opiate at bedtime. A few days after admission a few membranous shreds, entangling a minute speck of blood, were observed amongst the purulent deposit. The patient stated that he had, in the earlier stage of the complaint, noticed similar appearances. The clear portion of the urine continued albuminous, and the sediment, in addition to the pus corpuscles, exhibited a few blood discs with numerous amorphous shreds of fibrine stained with hæmatin. There was much lumbar pain, and great increase of distress before micturition. Cupping relieved these symptoms, and he was ordered linseed tea and tincture of henbane, which also seemed to mitigate the symptoms ; he also has experienced relief, he thinks, from the warm bath, which he has used each night before bedtime. The diagnosis of the case rests on a comparison of the chemical and microscopic characters of the urine with the symptoms and sufferings of the patient; and we have sufficient evidence to establish the opinion that it is a case of chronic pyelitis, originating in a calculus impacted in the kidney. The troubled, turbid, milky urine, containing albumen and pus, clearly indicates some morbid irritation in the urinary apparatus, and the pain and uneasiness in the perineum and bladder, and the frequency of micturition, justify the limits of our inquiry to this region.

But we have to interpret from these symptoms the part of the urinary apparatus which is the seat of the disease, for these conditions, in some respects, are common to many different disorders ; yet if they be carefully analyzed, and a just comparison established between the one and the other, we shall ultimately arrive at a correct diagnosis of the disease. Turbid troubled urine, with painful and frequent micturition, may occur in stricture, gleet, or gonorrhœa ; but, in the two latter, the character of the pain during the passage of the urine, and the appearance of discharge at the orifice of the urethra, not to say the stains on the linen of the patient, would make the case sufficiently clear. In stricture, in addition to a turbid urine, when gleet is present, there may be membranous shreds, and even minute coagula, such as have been noticed in the urine of the patient under consideration. But, in such a case, the pain and distress is felt during micturition, not before ; the urine passes with difficulty, or in drops, or in a diminished stream, and an exploration of the urethra proves the impediment to the free excretion of the urine. In calculus of the bladder, similar conditions of the urine might exist, and much pain be experienced in the bladder, perineum, and penis ; but the pain in such cases is most aggravated after micturition ; as the bladder fills the pain diminishes ; just the reverse happens in the painful and irritable

bladder of renal disease. Moreover, an exploration of the bladder establishes the presence of a stone. In the case before us, the patient refers the commencement of the pain to the region of the kidney, and describes the pain as if descending thence in the direction of the bladder, and becoming pungent and stabbing in the perineum, and occasionally extending itself to the extremity of the glans penis. These distressing sensations are always relieved by micturition, and there is a temporary lull till the urine collects again, even in small quantity. This fact is of much importance in the diagnosis of renal disease, and, taken in conjunction with the history of the case, with the albumen and amount of the purulent sediment in the urine, and the peculiar character of the lumbar and regional pain, constitutes very fair evidence of inflammatory action in the pelvis of the kidney.

In cases of inflammation of the bladder, cystitis or catarrh of the bladder, and limited to that cavity, the character and quality of the urine differs much from what is excreted in renal disease. The urine is contaminated by the inflammatory exudation from the vesical mucous membrane; pus cells, and the so-called exudation corpuscles, are present in abundance; but the pus corpuscles do not subside as a distinct and well-defined precipitate, they are entangled in a ropy magma, in which numerous crystals of the triple phosphate are visible; this viscidity and these crystals being rapidly developed by the agency of the alkaline urine always voided in inflammation of the bladder. This character of the urine will suffice to distinguish vesical from renal inflammation.

The ready separation of a turbid or milky urine into two parts, a clear supernatant portion containing albumen, derived from the liquor puris, and a sedimentary portion of pus corpuscles, distinctly precipitated, voided by a patient who suffered from severe regional pain either in the kidney or bladder, perineum or penis; and if, in the first-named position, aggravated by pressure or motion, or when, in the latter parts, relieved temporarily by micturition, and in whose urine gravel, or blood, or both, had been previously, or at some antecedent period, present, in such a collection of symptoms there should be little hesitation in referring them to chronic inflammation of the pelvis of the kidney.

After the patient had been in the hospital a fortnight, the quiet, the diet, the effect of warm baths, opium, and local depletion seemed to have produced a certain beneficial effect. Micturition was less frequent, the pain was less urgent, and the bladder consequently retained the urine in a larger quantity. This interval also enabled us to observe further indications of this disease. The pain in the region of the right kidney, or rather in the right lumbar region, is modified or aggravated according to certain positions. Thus he is easy, comparatively, while he is laid flat on his back, but the pain commences when he turns on either side, and continues so long as he remains in that position. In lumbago, there is severe pain in the loins; this

pain is aggravated by motion, the rising in bed, the turning from one side to the other; but it subsides so soon as the body is at rest, in whatever position that may be. We find it stated in the ward-book, that in the third week of his treatment the urine on one occasion was observed to be quite clear, free from albumen, free from any notable deposit or sediment, and presenting only a few scattered pus corpuscles when examined by the microscope; but that the next day, after an aggravation of symptoms, the urine became turbulent and purulent to a degree equal to what it had been previously. This state of things justifies still further the diagnosis, and aids us in the opinion that only one kidney is affected. It happens, in these cases, not unfrequently, that a temporary suppression, or rather retention of the purulent secretion from the pelvis of the kidney, is caused by the obstacle impacted in the outlet either receiving some fresh addition to its bulk, or some temporary pressure made on the contents of the kidney closes up the small aperture in the head of the ureter, through which the purulent fluid from the kidney passed into the bladder. It follows, the other kidney being free from disease, that the urine secreted will present no morbid conditions. This is the right interpretation of such specious symptoms, which rarely endure for more than a few hours; and the advice of Rayer, writing on this form of disease, is fully confirmed, that we should never be satisfied with an examination of urine passed at one single interval of the day, but in all such cases specimens should be seen of each act of micturition. Further depletion was not thought desirable, and the patient, in the fourth week, was placed on the sesquichloride of iron. His symptoms remained much the same—occasionally severe paroxysms of perineal pain, with much irritability of the bladder, and abundant purulent deposit in the urine, and then a few days of comparative freedom from renal distress. At this period, he complained on one occasion, early in the morning, of an attack of more than usual severity, commencing with violent throbbing in the right lumbar region, with a piercing, darting pain in the perineum; and after some little trouble in passing the last part of a small quantity of urine, he found a membranous film protruding from the orifice of the urethra, which he only partially succeeded in drawing out. He described it as like jelly. In the course of the day, a further portion was passed. During the remainder of his stay in the hospital, this symptom did not recur. This gelatinous kind of exudation has been noticed in analogous cases.

In the treatment of these cases our chief reliance must be placed on the palliative agency of opium. If it be a case of calculous pyelitis—that is, chronic inflammation of the pelvis of the kidney arising from the irritation of the calculus impacted therein, it is quite obvious that so long as the irritating agent remains, so long will the symptoms of chronic inflammation continue. We have no remedies

that can either dissolve or remove such a concretion, and the progress of the case must ultimately depend on the form and composition of the calculus, some of which escape into the bladder, with symptoms characteristic of their descent through the ureter, and, if their diameter be but small, may be excreted through the urethra; this is more likely to happen in the female. This small concretion now before me excited renal inflammation, and gave rise to purulent urine; violent colic pains suddenly arose; there was most urgent retching and vomiting, and the concretion reached the bladder. A few days after the subsidence of these symptoms, the patient's urine suddenly stopped, and after a few distressing and painful efforts of straining was ejected with violence, and a hard substance fell into the vessel. Fortunately the patient was in his bed-room, and the calculus was preserved. It does not exceed a pea in size, is very jagged on the surface, and glistens from the deposit of crystals of triple phosphate on its circumference, but its composition internally is oxalate of lime. This happened seven years ago, and the patient has never had any renal symptoms since. These numerous concretions and earthy *dèbris* are also from the kidney; they were passed eight years since with symptoms of pyelitis. The patient is living, and enjoys moderate health. These are the most favourable terminations to renal calculus. In other cases the calculus having escaped the kidney, lodges in the bladder, and gives rise to the usual symptoms, relief from which can only be obtained by the assistance of a skilful surgeon. But in by far the more numerous cases of calculous pyelitis, the concretion grows by the apposition of fresh matter, becomes impacted in the head of the ureter, does not completely occlude the outlet, but becomes branched and irregular in shape by the constant deposit of phosphatic matter derived from the action of alkaline purulent fluid on the urine, still secreted by the intact part of the kidney; the fluid retained in the pelvis of the kidney is constantly exerting a dilating influence, and in the progress of the case a renal tumour is felt, distinctly fluctuating; and if the history and symptoms of such a case be carefully collated, the diagnosis is not difficult. This preparation of a branched and ragged calculus impacted in the pelvis of the kidney, with a sacculated condition of the organ, illustrates these remarks. It must be clear that medicinal remedies can exert no curative influence in such a case. To palliate and relieve must be the limit of our aid.

In the case which has formed the subject of these remarks, you have seen that perfect quietude, the warm-bath, cupping on the loins in the early period, and opiates were the agents through which partial relief was obtained. The buchu, the sesquichloride of iron, and the nitro-muriatic acid, although severally administered, cannot be said to have done anything for the relief of the patient. He was made an out-patient six weeks after admission, and on October

2nd, ten weeks from the period of his discharge, his urine remained the same, and his symptoms were unchanged, so far as the report of his wife can enable us to judge.—*Lancet, November* 3, 1855, *p.* 403.

49.—*Oxalate of Lime and Urate of Ammonia, in a Combined Deposit, showing the necessity of Dissolving out the Urates.*—[The following may be worthy of the attention of young microscopic manipulators.]

Having lately been much employed in the examination of a patient's urine (the urina sanguinis), I discovered the oxalate of lime in great abundance in the semi-transparent deposit. This continued for some time. I then requested to be brought me urina chyli, which when brought had always a copious deposit of urate of ammonia, and now, by the microscope, I could only detect a few crystals of the oxalate. This passed on for a few days, but, as the crystals were very large, I was then led to suppose there were more obscured by the opaque urates. (In fact, I had hoped the enemy was retreating.) I therefore placed a drop of the urate sediment on my glass slide, and by the aid of Highley's dropping-bottle, (which, by-the-by, is very useful,) let fall a drop of liq. potassæ. My field was now quite clear, and in the place of only three or four, I found nearly as many as in my earliest examinations; in fact, they had been obscured by the opaque urates.

I am going down the hill, but if I can remove a hindrance from those who are climbing up, I would wish to do so. What I intend to convey, then, is this—that where oxalates have been found, to form a correct estimate when urates supervene, it is necessary to dissolve out the urates, as I have just shown.—*Med. Times and Gazette, Dec.* 15, 1855, *p.* 595.

50.—SACCARINE URINE OF LOW SPECIFIC GRAVITY.

By B. Wills Richardson, Esq., Dublin.

[This occurred in a sample of urine which had been sent some distance; the quantity of sugar present did not affect its specific gravity, being as low as 1·017. This is very rarely met with. Dr. Prout mentions having seen it as low as 1·015; but, in addition to the sugar in this case, there were a large quantity of torulæ present, a few crystals of uric acid, and no albumen.]

The tests I had recourse to in examining the urine were Moore's, Trommer's, and Maumene's. It may seem superfluous to say anything here relative to the mode of applying these, but still I venture to do so, because there is some nicety required in applying the tests of the two latter gentlemen. In case, for instance, we meet with a specimen of urine containing torulæ, and of a low specific gravity, as in the above

one, it will be at once evident that the quantity of sugar present cannot be considerable.

In using Trommer's test, therefore, we must not add much of the solution of sulphate of copper; in fact, the urine should be barely coloured with it, because—for the reason mentioned by Mr. Bowman—if too much of the sulphate of copper is added, the suboxide of copper "might be mixed with the black oxide (the sugar being capable of reducing only a certain definite quantity), which would, more or less, mask the characteristic colour and appearance of the suboxide."

There is a discrepancy between Heller's reading of Trommer's directions for using his test, and the translations of them by the generality of writers on urinary pathology, the former writer stating that Trommer's directions are, to "add a solution of sulphate of copper to the urine in a test tube, until an intensely green colour is obtained. I think, however, for the reason above given, that Dr. G. Bird's and Mr. Bowman's directions are the best to follow, particularly if we have only a small quantity of urine to operate on.

Perhaps it would be better for those who are not in the habit of pursuing investigations of this kind to try Kletzinsky's fluid (composed of potash, glycerine, and saturated solution of sulphate of copper;) I have used this test within the last few days, with some diabetic urine (specific gravity, 1·045), from a patient under the care of Dr. Law, and found it both convenient and easy of application. On adding a few drops of the fluid to the diabetic urine in a test tube, and boiling the mixture, it became of an opaque amber colour, with a tint of orange red by transmitted light, but on mixing nearly equal parts of it and the diabetic urine, and then boiling, the reduction of the copper was rapidly effected, but it had not the intense red cupreous colour of the deposit caused by Trommer's test with another portion of the same urine. On boiling some of Kletzinsky's fluid with non-saccharine urine, a whitish flocculent deposit makes its appearance in the blue solution, which has a slightly olive colour by transmitted light.

There is another test (Maumene's) relative to which I wish to say a few words. This test is founded on the circumstances of the power of sugar in reducing the salts of tin, or, as Mr. Bowman explains it, the "sugar is decomposed, and a brownish black compound, resembling caramel is produced." Narrow slips of white merino, or any other *woollen* tissue, are soaked in a solution of bichloride of tin, and then carefully dried in a water bath. Now, if we are not most careful in applying these test-cloths, for the detection of sugar, they may lead to error. This is owing to the readiness with which white woollen textures scorch, and thus become of a browish black colour, when there is no sugar whatsoever in the question.

The pieces of white merino, after being saturated with the suspected urine, should be also dried in a water bath, for if held over a lamp, or before a fire, it will be difficult to avoid the scorching, as just mentioned. If sugar be present, the test cloth will become of a dark brown-

ish, almost black colour. When carefully applied this is a very accurate test for sugar, but in my hands it was not so delicate as I was at first led to expect, (M. Maumene having stated that the prepared merino will detect the traces of sugar in a mixture composed of ten drops of diabetic urine and half a pint of water,) for I found that a mixture of one drachm of the diabetic urine (Dr. Law's specimen) and two ounces of distilled water gave no evidence of the presence of sugar with the prepared merino, and it was not until I had arrived at the proportion of two drachms of this urine to the same quantity of water, that there were any indications of the presence of sugar, but of course, not to the same extent as the undiluted urine. Let it be understood that I am not so presumptuous as to imagine that I may not have erred in my manipulation of Maumene's test. I took every precaution, however, to avoid error, and I procured the bichloride of tin at one of the most respectable pharmaceutical houses in this city.

It is of importance, as Mr. Bowman mentions, not to use either cotton or linen for Maumene's test, because these substances being analogous to sugar in composition, are similarly decomposed when warmed with the bichloride of tin.

In testing the specific gravity of urine, it is necessary to see that the urinometer is accurate. These instruments are often very incorrect, so much so as to give rise to an error of eight or ten degrees in the reading. Dr. Beale has drawn attention to this point; according to this gentleman, the "degrees marked upon the stem should gradually diminish in length from above downwards. If they are equal, the instrument may at once be pronounced as incorrect, without resorting to an experiment." I have myself seen urinometers, so graduated, give an error of five degrees in the reading.

Since the foregoing was put in type, I have seen Dr. Hassall's interesting paper on the development of torulæ in urine. From his investigations, it appears that two different species of fungus may be met with in the urine. One resembles the Penicilium glaucum, and the other is the true sugar fungus, and is identical with the Torula cerevisæ, or yeast plant. The Penicilium may be developed in either non-saccharine or saccharine urine, but the latter only occurs in urine containing sugar. They may, however, co-exist in the same saccharine urine. The Penicilium is frequently seen in acid albuminous urine.

For further information on this point I must refer to Dr. Hassall's memoir, in the thirty-sixth volume of the Medico-Chirurgical Transactions.—*Dublin Hospital Gazette, Jan.* 15, 1856. *p.* 372.

51.—*Rapid Detection of Sugar.*—M. Botte has several times employed the method suggested by Liebig of quickly detecting sugar. A small quantity of ox-gall is dissolved in the suspected fluid in a test-glass, and a quantity of concentrated sulphuric acid equal in amount

to that of the fluid in the glass is rapidly added, care being taken to pour it along the side of the glass. If sugar is present a beautiful purpurine is immediately produced.—*Rev. Médicale, June, p.* 685.—*Med. Times and Gazette, Oct.* 13, 1855, *p.* 374.

52.—ON THE CONNEXION BETWEEN BRONZED SKIN AND DISEASE OF THE SUPRA-RENAL CAPSULE.

By Dr. Addison, Senior Physician to Guy's Hospital. (Reported by J. Hutchinson, Esq.)

The Senior Physician of Guy's Hospital has recently added to the list of benefits which medical science had already received at his hands, by the publication of a monograph on the "Diseases of the Supra-renal Capsules." In this work, Dr. Addison, as probably most of our readers are aware, advances the opinion, that destructive disease of these hitherto little regarded organs is attended by most serious constitutional mischief. His views, which are, indeed, the simple expression of his clinical experience, and are supported by 11 carefully narrated cases, may be concisely expressed as follows:—1. That a peculiar browning or bronzing of the skin is indicative of disease of the supra-renal capsules. 2. That it may depend on any disease which affects the disorganization of these bodies, *e.g.*, cancer, tubercle, abscess. 3. That patients suffering from this symptom fall gradually. and without obvious cause, into a peculiar form of debility, which results almost invariably in death within a limited period. 4. This form of debility is rarely attended by much emaciation, and the subject of it, although with much flabbiness of tissue, retains throughout a general bulkiness of frame which contrasts strongly with his extreme feebleness. 5. That, usually, no other important visceral complication supervenes.

Should these conclusions prove to be correct, it will be seen that we have an important and well-characterized disease added to the nosological list. Here is a train of peculiar symptoms and events originating in a morbid state of an organ of the pathology of which, hitherto, nothing has been known, and whose functions, whatever they may be, have been deemed of but little importance. Dr. Addison's facts are as yet only 11 in number, and, although they all support the conclusions indicated, yet that they are not sufficient data to set at rest so important a question, few, we suspect, would be found more willing to admit than himself.

[From the great number of cases which have been well marked and well observed, we may assume that the theory is now well grounded. The supposed exceptional cases which have been recorded, only prove the validity of the connection between them.]

Symptoms attending Diseases of the Supra-renal Capsules.—1. *Change of colour of the skin.*—The term "bronzing" probably conveys as good an idea of the exact character of the appearance assumed by

the skin in this disease as could well be given. It resembles strikingly the colour of a bronzed statue from which the gloss has been rubbed off. Pressure has no effect in causing its diminution. It seems as a rule to commence first in patches with ill-defined borders, on those parts most exposed to the sun and to friction, the neck, the backs of the hands, the fronts of the thighs, the arms, &c. Around the nipple, and in other parts where pigment naturally abounds, it is generally well marked, while others, possessing little or no pigment originally, as the palms of the hands, the ungual matrices, &c., remain as pale as ever. This tendency to show itself in patches, is strongly in support of the belief that the change is really one of deposit of pigment; which derives further confirmation from the circumstance, that in not a few cases the punctate, or even patchy deposit of black matter was observed in the mucous membrane of the mouth, and in the serous investment of the abdominal viscera. The conjunctiva usually remains pale and pearly, a condition which well distinguishes true bronzing from the various states of jaundice. The changed colour of skin, although most important for purposes of diagnosis, is probably of very minor consequence among the other departures from health which attend renal capsular disease.

2. *Debility.*—Next to the bronzing of the integument the extreme and peculiar feebleness manifested appears to be the most striking of the symptoms. Without any evidence of thoracic disease, without any great loss of flesh, the patient becomes liable to faintings, loses energy, is unable to exert either body or mind, and, in short, appears to be on the point of death from sheer weakness. In almost all the cases comprised in the Table this state of things was very well marked. In cases 14 and 15, however, the loss of strength had not proceeded *pari passu* with the change in the tint of the skin and appears to have attracted attention only for a few days prior to the fatal event.

3. *Emaciation.*—That there has generally been observed a want of correspondence between the extreme debility and the degree of emaciation coincident with it, seems evident. Several of the patients are described as having remained muscular and fat up to the very last. In almost all, however, there had been some loss of flesh, and in many it had even been considerable. Dr. Addison's observation, that flabbiness of the solids rather than actual wasting is characteristic of the condition, seems true of the majority of cases.

3. *Anæmia.*—In almost all cases, there would seem to have been present great depravation of the coloured constituents of the blood, as manifested by the pallor of those parts not involved in the bronzing, the general flabbiness of the muscles, the pearly state of the conjunctiva, &c. In two only (cases 3 and 13) was the blood examined with the microscope, and in both those it was found to be loaded with white corpuscles. To the impoverished state of the blood is, no doubt, to be referred the breathlessness on exertion, the debility, the feebleness of the heart's action, and perhaps also the irritability of the stomach.

4. *The pulse.*—With a few exceptions, in which it became rapid, the pulse has generally been of but average frequency, and peculiar only in its extreme softness and compressibility.

5. *The tongue.*—It does not appear that any state of the tongue other than that common to most conditions of debility has been observed in connexion with this disease.

6. *Dyspepsia.*—In almost all cases prior to death, and in many for protracted periods, great irritability of the stomach was present. In most there was loss of appetite, more or less persistent nausea, and occasional vomiting, with pain and sense of sinking at the epigastrium. In the majority, it would seem that the bowels have been costive rather than otherwise, while, in a few, attacks of diarrhœa had occurred. In several instances the patients had been liable to "biliousness." Much more detailed observations as to the symptoms of indigestion present are desirable.

8. *The Urine.*—The urine was tested for albumen in many of the cases, and in some for sugar; but in no instance was any important departure from its normal constitution observed.

9. *Lumbar Pain.*—Aching, more or less severe, in the back or loins, was a symptom present in a considerable proportion of the cases. In two of these there was, however, disease of the vertebræ, by which it might have been occasioned; and the evidence respecting it is not such as to induce us to attach much importance to its signification.

10. *Nervous Symptoms, Convulsions, &c.*—Symptoms referable to disorder of the cerebro-spinal functions occurred in several of the cases. In three, epileptiform convulsions preceded death. In one, failure of memory, and remarkable change in temper, was observed; and in a second, numbness of the fingers, legs, and the tip of the tongue, had been present. In one, the man had suffered from tic douloureux.

11. *Odour of the Body.*—In two cases, both under care at the Brighton Hospital, it was noticed that a peculiarly disagreeable odour was exhaled from the patient's body. In one this was present for a few weeks, and in the other only for a few days prior to death. The phenomenon is not mentioned in the reports of any other case in the series, and Dr. Addison informs us that it was not noticed in any case under his observation.

Such, then, appear to be the more important of the train of symptoms observed in connexion with this disease. It is, necessarily, as yet, from the paucity of facts, meagre and inexact, but the general features of the group are, nevertheless, well characterized, and would seem to have been present with tolerable uniformity.

Mode of Death.—In only a small proportion of the cases included in our series has the exact mode of death been recorded. In several the death is stated to have been that of exhaustion. In some, a peculiar form of collapse, without obvious cause, preceded it, while, in two or three others, this collapse followed very slight, and usually inefficient,

causes, such, for instance, as the action of an aperient dose. In one the collapse was so extreme, and had supervened so suddenly, that poisoning was suspected. In one the patient died of pericarditis with pneumonia; and in another, a torpid condition resembling that of typhus preceded death. In three, convulsions had been present. Speaking generally, we may say that the phenomena attending death are those of utter prostration of the vital powers, not unfrequently complicated by disturbance of the nervous functions.

Diagnosis.—The combination of a bronzed state of the skin with great systemic debility may be held indicative of disease of the supra-renal capsules; and the more marked these conditions are, the more positively may the opinion be formed. A differential diagnosis may sometimes be requisite, however, as regards the following diseases: 1. *Jaundice.*—In some states of chronic jaundice the skin may be brown rather than yellow, and great vital depression may exist. Here, however, the conjunctiva and the matrices of the nails would, by their discoloured state, prevent the possibility of deception. The tint in jaundice is also a diffused one, and does not occur in patches, as in true bronzing. 2. *Browning from exposure to sun, &c.*—In these, the examination of parts protected by the clothes would generally be sufficient to prevent error. 3. *Pityriasis versicolor.*—The patches of pityriasis versicolor sometimes remarkably resemble those of the bronzed skin. Their limitation to the abdomen and chest, their defined outline, their furfuraceous surface, the slight itching which attends them, their contagious character, and, above all, the microscopic examination of the cuticle, furnish, however, abundant means by which to distinguish between the two. 4.—*The diffused brown muddiness of some other cachexiæ.*—The dark areola round the eye, so often seen in states of disordered menstruation, is in rarer cases found coincident with a loss of healthy tint in the skin generally, which assumes a dirty, sallow, brownish appearance. This, in exaggerated instances, might be mistaken for bronzing; and, indeed, we are not sure that cases 21 and 26 in the series are not examples of this mistake having been committed. It would be premature, indeed, to assert that this state may not have something to do with functional, and perhaps transitory, disorders of the organs, upon structural disease of which the states of more extreme discoloration are found to depend. We have, however, no positive evidence that it does so. In the meantime, it should be borne in mind that in all cases in which bronzing is to be held as positively indicative of diseased capsules there ought to be traces of patching and mottling in some parts; and that in proportion as the tint is equally diffused over the whole body is the diagnosis doubtful.

Prognosis and Treatment.—We have as yet no reason for believing that in cases of true bronzing of the skin, the physician can do other than give the most unfavourable prognosis. No recovery has yet been recorded, nor, indeed, has even temporary improvement under treat-

ment been very marked in any case. After such an avowal it may, perhaps, seem superfluous to speak of treatment, since in our search for principles to guide us in it, we can avail ourselves only of that very delusive light which pathology furnishes. There seems, however, reason for believing, that the morbid changes to which the supra-renal bodies are liable are most of them more or less closely allied to inflammation ; and from this fact one might, perhaps, be justified in selecting remedies from the class of drugs known to possess influence over that process. The exhibition of a course of mercury (in very small doses), or the use of the iodide of potassium, the patient's strength being meanwhile supported by a nutritious but non-stimulating diet, would probably be the most rational practice which could be suggested for a case of bronzed skin. As the change in colour is, however, only produced, in all probability, after the organic disease has considerably advanced, there would not, it is to be feared, be much to be hoped for in the way of restoration of function.

Morbid Anatomy.—The cases recorded show examples of the following conditions of disease in the supra-renal bodies. A remarkable symmetry of disease appears to have existed in all excepting the cases of cancer.

1. Acute and recent inflammation ending in abscess. 2. Atrophy with fibro-calcareous concretions. This condition appears to have been present in seven cases. In some of them cysts existed, and in several a fluid matter resembling pus was contained in the cysts, and bathed the solid fibro-calcareous concretions. These changes probably result from inflammation of chronic character. The complete disorganization of the viscus is usually effected, and in all the cases recorded both glands were involved. 3. The conversion of the viscus into a sort of fibroid structure, with great enlargement and induraton. This occurred in two of the cases, and in both all trace of healthy tissue was lost. 4. The deposit of tubercle. In three instances masses of deposit resembling tubercle were observed, and, coincidentally, great enlargement of the organ and loss of normal texture. In two the deposit existed in both organs, and in one there was no tubercle in other viscera. It may be doubted whether the deposit is not really more nearly allied to some form of fibrinous effusion, the result of inflammation, than to true tubercle. 5. *Cancer.*—In six cases the deposit of cancer has been observed. In all it was secondary to the same disease in other organs. In four it affected but one organ, and in two both were involved. In but one was disorganization of both effected.

Theory of the disease.—The observations of Dr. Addison, although they may not as yet have resulted in discovery of the function of the supra-renal bodies, have certainly proved them to possess some very important one. We see their destruction followed in every case by extreme constitutional disorder, loss of strength, depravation of the blood, failure of digestive power, a peculiar tendency to pigmentary deposit,

and finally, by the death of the patient, in spite of all measures for his relief. By whatever morbid change that destruction has been effected, whether cancer, tubercle, or inflammation, the same sequences appear to result, and it would seem that we are fairly authorized in classing them as consequences on it, and not as mere coincident effects of some other cause. Taking these facts in connexion with the observations of anatomists as to the very large supply of nerves received by the supra-renal bodies, and the great similarity of certain of their so-called "gland cells," to those of nerve ganglia, the conjecture that these viscera are in some way very closely associated with the organic nervous system, seems to have much in its favour. Supposing them to exercise a presiding influence over the functional efficiency of some of the viscera of the abdomen, it is easy to see how fatal lesions of health might ensue on their destruction. Dr. Gull has pointed out the close resemblance between the pineal gland and the supra-renal bodies in minute anatomy and also in liability to calcareous deposit, and the idea seems to well merit attention.

We shall venture to conclude this report by a few words on what appear to us as

Desiderata in the further prosecution of the inquiry.—1. With regard to the cases of *Bronzed Skin.* It is desirable that in all cases in which any approach to bronzing is observed, that detailed notes should be preserved, having especial reference to the following points:—*a.* The degree of discoloration, the parts affected by it, the parts retaining their healthy hue, the state of the mouth, conjunctiva, &c. *b.* The history of the alteration in colour, when it first occurred, &c. *c.* The patient's previous state of health. *d.* The patient's present health, as to emaciation, debility, dyspepsia, symptoms of nervous disorder, &c. *e.* The condition of the excreta. The urine should be carefully examined, and the fæces inspected from time to time. *f.* The state of the blood, both by microscope and chemical analysis. *g.* The presence or absence of any peculiar odour from the patient's body. *h.* The abdomen and thorax should, of course, be submitted to physical exploration, and the exact order of sequence of the various symptoms should be carefully examined into.

2. With regard to the *supra-renal capsules.*—It is desirable that henceforth it should become the practice of pathologists to inspect these organs in all post-mortems, without regard to the cause of death. If appearances suspicious of disease are found they should be minutely described, regard being especially had to the extent to which the natural structure of the viscus has been destroyed. As yet so little familiarity with the very different appearances which the capsules may present in a state of health prevails even among experienced morbid anatomists, that great caution will be necessary to prevent mistakes. Whenever doubt is felt, the specimens should be submitted to the inspection of some more practised observer—an end

which, we may suggest, would be well obtained by bringing them before a meeting of the Pathological Society.

3. In the publishing of cases, it is desirable that much more of detail should be given than has been done in most of those hitherto recorded. More facts are wanted, but these facts must have the stamp of accuracy and exactitude, or they will be comparatively valueless. That the important field of investigation, to which Dr. Addison has attracted the attention of the profession, will be cultivated with zeal, we cannot doubt. Great care, however, as well as zeal, will be requisite.—*Med. Times and Gazette, December* 15, 1855, *p.* 593*; and March* 22, 1856, *p.* 281.

SURGERY.

AFFECTIONS OF THE BONES AND JOINTS, &c.

53.—DISLOCATION OF THE FEMUR.—REDUCTION BY THE FLEXION PLAN.

Communicated by R. P. Jones, Esq., House Surgeon to the Taunton and Somerset Hospital.

[The subjoined narrative gives another good illustration of the superior efficiency of the modern plan of reducing dislocations of the femur. The patient was a strong athletic woman seven months advanced in pregnancy. She was admitted under the care of Mr. Welch, July 28th, eight hours after having fallen from a height of about sixteen feet.]

The right lower limb was found extended, and away from its fellow; it was two inches longer than the left, and the foot was slightly turned inwards. The pain in the hip was excruciating. Having put her under the full influence of chloroform, another attempt was made in the usual way to reduce it. This was also unsuccessful, but the thigh was now somewhat more easily flexed on the abdomen. She was subsequently again put under the full influence of chloroform, and Mr. Welch now succeeded in reducing the dislocation in the following manner:—The thigh was flexed on the abdomen as far as possible, and the upper end of the femur was pulled outwards, the counter-force being applied to the knee, which rested on the right shoulder of the operator. At the same time, the limb was gently rotated outwards by an assistant. There was no effect produced in this extreme flexed position; but in gradually bringing the limb down while the same forces were continued, the head of the bone slipped into its socket with an audible snap, when the thigh had been brought to a semi-flexed condition. The whole procedure did not occupy above two or three minutes. A bandage was applied to keep the knees together, and she was then removed to bed. The chest had been bandaged before admission. With the exception of a slight attack of peritonitis, the woman did very well, and was discharged cured on the 16th of August.—*Med. Times and Gazette, April* 12, 1856, *p.* 362.

54.—DISEASE OF THE SHOULDER JOINT.

By James Syme, Esq., Prof. of Clinical Surgery in the University of Edinburgh.

[The subject of the present remarks was a young woman, aged 19, who had a sinus on the inner side of the right shoulder, which had existed for twelve months. A probe would pass through this opening to the coracoid process of the scapula, Mr. Syme thought it might have been caused as the patient stated, by too long sustained efforts of the biceps, in carrying a heavy pot at arm's length, just as excessive exercise of the muscles which extend and adduct the thigh bones is so apt to cause exfoliation of their sciatic and pubic insertions. The opening was enlarged, and a portion of the coracoid process extracted. After this, the discharge of matter, instead of diminishing increased, and there was evidently serious disease of the shoulder joint, so that it was necessary to do something more effectual for the patient's relief.]

The patient being brought in, Mr. Syme enlarged the opening over the coracoid process, so as to admit his finger into the joint, when, finding the head of the bone bare, he extended the incision downwards along the inner edge, and nearly to the insertion of the deltoid. He then, by means of a probe-pointed bistoury, guided on his finger, detached the connexions of the spinati and other muscles connected with the greater and smaller tuberosity of the humerus, and pushing the arm upwards, so as to protrude the head of the bone, seized it in one hand, and sawed it off by a common saw with the other. As the glenoid cavity was found perfectly sound, nothing more seemed requisite than removal of the coracoid process, which still remained rough. It was therefore exposed and divided at its base by cutting-pliers. The only vessel that required ligature was a branch of the thoracica humeralis, and the edges of the wound being stitched together, the arm was placed in an easy position across the chest.

This case (says Mr. Syme) appears to me peculiarly interesting, not merely with reference to the relief which the patient may be expected to derive from it, but on account of its bearing upon some important points of surgical pathology and practice. In order to explain these views, I beg, in the first place to remind you, that although all the articulations in the body are constituted by similar textures, they are not equally disposed to the same morbid derangements. The ball and socket-joints, such as those of the shoulder and hip, are liable to chronic inflammation, suppuration, and caries, while those of the hinge-joint formation, such as the knee, ankle, and elbow, are the frequent seats of those derangements which have been named ulceration of the cartilages, and gelatinous degeneration of the synovial membrane, and were formerly comprehended under the general title of "white swelling." But the shoulder-joint is apt to suffer from disease in certain

ways entirely peculiar to itself, which, as they are not described by systematic writers on surgery, I may now endeavour to explain.

This peculiarity appears to depend upon inflammation affecting the head of the humerus independently of the scapular or corresponding surface, and inducing important changes limited to that part of the articulation. Of these a very remarkable one is removal of the osseous substance by absorption, so that a cavity is left in place of the round extremity. I first became aware of this curious fact two-and-twenty years ago, from the case of a boy, 14 years of age, who was confided to my care in this hospital, by Mr. Craig, of Ratho, on account of disease in the shoulder-joint, which it had been supposed would require amputation of the arm. Unwilling to adopt so severe a measure, I resolved to attempt excision of the diseased bone, and with this view made an opening into the joint, immediately under the acromion, when, instead of finding the articulating surfaces rough and carious, I found the glenoid cavity perfectly sound, the head of the humerus entirely wanting, and a large exfoliation contained within a thin osseous shell, of which the sides yielded, so as to allow of its extraction without any difficulty, together with a few thin scales of bone, which, from their convex surface, were obviously portions of the dense substance subjacent to the articular cartilage. The exfoliation is obviously the commencement of the shaft of its full thickness, so that all the cancellated bone between this and the small part of articulating surface remaining must have been removed by absorption. Various cases of a similar kind have since come under my notice; and, in one of them, the dead lamina of articulating surface was so complete that it resembled the glass of an old-fashioned watch. From these facts, I concluded that inflammation might affect the head of the humerus independently of the scapula, and excite absorption of its spongy or vascular portion, while the denser substance covering its articulating surface, and constituting the neighbouring part of the shaft, possessing less power of resistance, was deprived entirely of vitality. The view thus taken accounted completely for the case related by Mr. White, of Manchester, which had long perplexed surgical readers. In 1769, he communicated to the Royal Society of London an operation which he had performed for caries of the shoulder-joint by cutting out the head of the bone, together with a portion of its shaft, which was followed by a further exfoliation to the extent of an inch and a half, with the surprising result of a speedy recovery, and complete usefulness of the arm. Having often read and pondered this case, I was struck by the perfect similarity, in so far as its upper surface was concerned, of the exfoliation which I removed, with that of the portion removed by Mr. White; and, on comparing the two cases, found that they were in every particular almost precisely the same as to the age and history of the patients, who were both boys of fourteen, except in regard to the length of time during which the disease had existed. Mr. White operated at the end of a few weeks, and I not until the lapse of as

many months, so that while in both cases absorption had removed the head of the bone, Mr. White anticipated the exfoliation, which was completed while I performed the operation. In such cases, the periosteum, being detached from the dead bone, becomes the seat of ossitic formation, which forms a shell ready to supply the place of the absent bone, if not perfectly, at all events sufficiently for every useful purpose, so that there could be few more grievous errors than performing amputation of the arm under circumstances of this kind. But the inflammatory condition may lead to a different derangement, which it is, if possible, of still more consequence to discriminate from disease of the joint involving the scapula.

Thirty years ago, having just commenced the practice of my profession in Edinburgh, I was requested to take charge of a respectable married woman, named Christian Laing, 38 years of age, who had suffered for seven years from excessive pain, followed by suppuration, and discharge of matter through various openings in the vicinity of the right shoulder. She had been dismissed as incurable from the Royal Infirmary, and had also been regarded by Mr. Liston as in a condition not admitting of any relief. As she was extremely exhausted and daily becoming weaker, I naturally felt anxious to do something for her relief, and having no doubt that caries of the shoulder-joint was the source of all the symptoms which required remedy, I resolved to undertake its excision, although there was then no precedent for such an operation in Scotland, and little encouragement to it afforded by the practice of England, where more than half a century had elapsed without any attempt of the kind, excepting the removal on one or two occasions of the shattered fragments resulting from gun-shot wounds. I made an incision from the acromion process directly downwards, and, finding the bone hollowed into a cavity, made a second incision upwards and backwards from the lower end of the first one, so as to form a flap, which, being detached from the bone, allowed me to protrude it, and saw off the head. The glenoid cavity, being perfectly sound, was not disturbed. The patient made a good recovery, and during ten years which afterwards elapsed, until she died from another disease, enjoyed the perfect use of the arm for every domestic purpose, so that when her clothes were on it was impossible to distinguish it from the other.

In explaining cases of this kind I have hitherto been obliged to stop here, and frankly confess my inability to afford any satisfactory explanation of the remarkable peculiarities thus exhibited by the shoulder-joint in regard to its morbid conditions; but through the case at present under our consideration, I at length see a light which will probably guide us to a satisfactory conclusion. The well-ascertained effect of excessive contraction in causing exfoliation of the pelvic bones to which the muscles of the thigh are attached, together with the patient's history, can leave no doubt in the mind of any reasonable person that the diseased condition of the coracoid process proceeded from inordinate

action of the biceps. But if the short head of this muscle was so strongly exerted as to occasion such mischief, its long one, which passes up the bicipital groove, enters the joint, and terminates in the glenoid ligament, must have been strained in a corresponding degree, so as to render inflammation of the parts immediately in connexion with it neither improbable nor surprising; and in point of fact, when we examine the portion of bone removed, the groove which was occupied by the tendon of the biceps shows unequivocal marks of having suffered in an especial degree from the disease by its more than usual depth, intensity of redness, and vascularity, and exposure of the bone in part of its course. There is no other joint in the human body which has a tendon passing through it like that of the shoulder, and to this peculiarity of structure I think we may now fairly ascribe the peculiarities of pathological condition by which it is distinguished.

The patient recovered quickly, without any interruption, so that before the end of three weeks there was hardly any discharge from the wound, and she had in a great measure regained her general health. When she was dismissed, the arms were of equal length, there was no perceptible deformity of the shoulder, and the joint could be moved at will in all directions. Mr. Syme was therefore led to remark, that the mode of operating in this case, which had been suggested by its peculiar circumstances, seemed preferable to any of the others previously employed from views of expediency. It was certainly easier in the performance than any of the methods which he had tried, and did not at all interfere with the integrity of the deltoid, so as to lessen the motive power of the shoulder-joint.

The head of the bone, when examined after maceration, was found to present some very remarkable appearances, corroborative of the opinion which had been expressed as to the origin of the disease. A considerable part of the convex surface had been excavated by absorption into a hollow that contained some detached exfoliations, without any signs of caries either there or in the remaining portion of articulating surface, which was simply divested of its cartilage; but between the tuberosities the bicipital groove was hollowed into an oval aperture, exposing to view the pieces of dead bone already mentioned, and affording unmistakable evidence of a carious condition by the peculiar rough and spicular aspect of its surface.—*Lancet, March* 22, 1856, *p.* 323.

55.—*On Diseases of the Joints*, By Frederick C. Skey, Esq., F.R.S., Surgeon to St. Bartholomew's Hospital.—[We sometimes meet with cases, especially of diseases of the knee joint, which set every form of treatment at defiance.]

It should be recollected that the class of diseases of joints that presents itself in public hospitals is composed of cases often of months" or even years', duration. In such examples I have found little advan-

tage, if any, from depletion by leeches or cupping; on the contrary, I think such treatment has generally proved injurious. I have found more benefit derived from the inunction of mercurial liniment, with about a third in quantity of fluid extract of opium, followed by rest and the somewhat firm application of a flannel roller; and the daily employment of a steam bath, made by cutting in two equal parts a square deal box, and laying the limb through the centre. An aperture admits the spout of a small kettle, in which the water is boiled by the aid of a spirit-lamp.—*Lancet, Jan.* 26, 1856, *p.* 87.

56.—ON CONTRACTIONS OF THE KNEE-JOINT.

By John Erichsen, Esq., Professor of Surgery at University College, and Surgeon to the Hospital.

Contraction of the knee-joint is one of the most distressing deformities to which the human frame is liable. If severe, the leg is bent at nearly, or perhaps quite, a right angle with the thigh. It is fixed in this position, so that the patient cannot put the sole of the foot, or even the points of the toes, to the ground; hence the limb becomes useless for the purpose of progression, and, from want of exercise, atrophies. But the leg with a badly-contracted knee is worse than useless—it is a positive incumbrance; for, as the foot cannot be brought fairly to the ground, the limb projects behind in a most awkward manner, swaying as the body moves round, constantly in the way, and liable to injury. From want of exercise, the nutrition of the limb thus affected becomes impaired; the foot is usually habitually cold, the circulation in it languid, and the toes liable to chilblains in cold weather.

In the less severe form of contracted knee, the inconvenience, though not so great as that just described, is yet very considerable; for, as the patient can never bring the heel or sole to the ground, he rests insecurely on the tips of his toes, and walks but unsteadily with the aid of a crutch or stick.

Contraction of the knee-joint may arise from a great variety of pathological conditions. Some of these are altogether external to the joint, being seated in the nerves or muscles of the limb; whilst others, and the majority, are dependent on some morbid change that has taken place within the joint itself in its ligamentous or osseous structures. As the contraction depends on such very varied causes, the treatment having reference to the cause as well as to the actual morbid conditions, must be equally diversified.

The simplest mode of discussing this subject will be to consider each variety of contracted knee with its appropriate treatment.

Occasionally the contraction, as I have already observed, is rather dependent on some irritation of the nerves and muscles of the part than on any disease of the joint itself.

Contraction from nervous irritation is usually associated with general hysteria, of which it is but a local symptom, and commonly occurs in girls and young women. In this form of contraction there is no evidence of disease within the joint; no redness, swelling, or other sign of inflammation; but there is great pain and tenderness about it. This pain, as usual in hysterical cases, is superficial and cutaneous, and radiates to some distance beyond the articulation. Any attempt at straightening the limb not only greatly increases the pain, but also calls the muscles about it into such forcible action that it is impossible to improve its position. These local symptoms are connected with the ordinary signs of an hysterical temperament, with spinal irritation, and often with uterine derangement.

The treatment of these cases of *hysterical contraction* of the knee is simple. The first thing to be done is to straighten the limb. This can only be effected by putting the patient under the influence of chloroform, when, all sensibility being suspended, the muscular opposition, which is partly voluntary, and no doubt in some measure reflex, is no longer called into action, and the limb falls of its own accord almost into the straight position, in which it must be retained by means of a long splint, lest the retraction recurs with returning consciousness; and then, the hysterical condition being removed by treatment calculated to improve the general health, the tendency to the return of the deformity will be obviated.

The following case illustrates these points:—

Case 1. A girl, eighteen years of age, was admitted into University College Hospital, in November, 1853, for a contraction of the right knee. The patient was of a nervous, excitable temperament, subject to hysterical attacks, and menstruated irregularly, but otherwise in good health. The right knee was contracted to a right angle with the thigh, and had been in this position for four or five months. No cause could be assigned for the deformity, except a slight blow on the knee some time previously, after which the contraction gradually came on. There was extreme tenderness all over and above the joint; this was cutaneous, increased greatly by pinching up or fillipping the skin, without in any way influencing the articulation. There was some spinal tenderness. No sign of inflammation or of injury about the joint. Any attempt at extending the limb was violently resisted, brought on intense suffering, with spasm of the muscles of the thigh, and was ineffectual in altering the position of the joint. I had the patient immediately placed under chloroform. So soon as she was fully anæsthetized, the limb could be straightened without an effort. It was then put on a well-padded, straight splint for a few days. The patient having been put on a course of the compound iron mixture, with the compound decoction of aloes, and shower-baths, speedily lost her other hysterical symptoms, and left the hospital cured.

We occasionally see contraction of the knee from spasmodic contraction of the hamstrings, arising from some irritation applied to the

nerves at a distance from the part. Just as we have spasm of the internal rectus of the eye occasioning squint, so long as the irritation that gives rise to the spasm lasts; so we may have spasm of the hamstrings, with contraction of the knee as a consequence. I remember a remarkable instance of this some years ago in the hospital.

Case 2. A lad, twelve years of age, was admitted for contraction of the right knee, of eleven weeks' duration. The limb was bent at a right angle, and tolerably firmly fixed. The contraction had gradually come on, no cause could be assigned for it, and the general health seemed good. After some ineffectual treatment of a local nature, it was found that the bowels were loaded. A dose of calomel, followed by castor oil and spirit of turpentine, was then administered, when a large quantity of fæces, with some lumbrici, was expelled. The contraction disappeared on the following day, and did not return.

Most commonly, however, the joint itself is at fault, owing either to inflammatory action of a subacute character going on within it, or to the chronic and permanent changes induced by former inflammatory attacks.

In inflammation of the knee, the patient naturally and instinctively places the limb in the semi-flexed position, as being that in which there is least tension exercised on the structures that enter into the joint, and consequently that which is most congenial to his feelings. The position which is immediately assumed on the occurrence of acute and active inflammation in the joint comes on more gradually in cases of subacute inflammation, and here the symptoms of disease in the joint may be so slight that the contraction may be considered the chief ailment, and engross too exclusively the surgeon's attention.

Case 3. A strumous boy, fourteen years of age, was admitted under my care in March, 1852, for contraction of the left knee. The limb was firmly flexed at a right angle, and had been so for about two months, during which period he had been unable to put the foot to the ground. There was no heat or swelling to any material extent about the joint, but some pain and tenderness were complained of along the course of the sciatic nerve and at the inner side of the joint; pain also was elicited on firmly pressing the articular ends together. There was no constitutional disturbance. Leeches were ordered to the joint, and blisters afterwards, with small doses of mercury with chalk and compound ipecacuanha powder, and the limb to be placed on a pillow. This plan of treatment was persevered in for about a week; the contraction gradually yielded, and the knee became straight, without the necessity of any extending force being applied to it.

We have thus seen that contraction of the knee may arise from hysteria, from muscular spasm, and from subacute inflammatory action within its articulation, each case requiring its own special modification of treatment, but none necessitating mechanical appliances.

The next class of cases that we have to consider are those of a more chronic and intractable kind, lasting often for years, dependent upon

structural lesions of a deep and important character in and around the joint, and requiring very active surgical interference for their cure. These chronic forms of contracted knee appear to arrange themselves in four distinct varieties, being dependent—1st, on consolidation and contraction of the ligamentous structures in or around the joint: 2nd, on permanent contraction of the muscles; 3rd, on both these conditions conjoined; and 4th, on osseous anchylosis. Each of these varieties will require separate consideration, as each demands a special mode of treatment for its cure.

Those cases of contraction of the knee that depend on consolidation of the ligamentous structures in and around the joint, resulting from former inflammatory attacks, are not only the most numerous, but the most readily amenable to treatment. In these cases the knee is usually fixed at, or near a right angle, and admits of but very limited motion, to such an extent only, in most instances, as will allow the foot to move to the extent of two or three inches. The hamstring muscles are not tense, even when the knee is extended to its utmost; and, indeed, in some cases are flaccid, and feel soft. Not unfrequently the leg admits of extension up to a certain point, with as much freedom as natural, and then the further movement of the limb is checked by a sudden stop. If this be not dependent on the tibia coming in contact with an anchylosed patella, it is owing to shortening of the crucial ligaments, or to the formation of adhesions within the joint. In this form of contraction, the knee is often much distorted, owing to the head of the tibia being partially dislocated backwards, or having its axis directed more or less to one side, most commonly inwards, constituting a kind of genu valgum. These distortions are, I believe, dependent on softening and consequent relaxation either of the ligamentum patellæ or of one or other of the lateral ligaments. When the head of the tibia is displaced backwards, it will most generally be found that the ligamentum patellæ has been either partially absorbed, and thus weakened, or is elongated, the patella being drawn upwards or to one side. In either way the action of the extensor muscles of the thigh upon the head of the tibia is weakened, and that bone being subsequently brought under the influence of the hamstrings without a counterpoise, is drawn backwards. In those cases in which there is lateral rotation of the tibia, the faulty position may have arisen from the attitude that the limb has been allowed to assume during the progress of the disease in the joint.

In the treatment of this form of contraction of the knee, simple extension of the limb will prove sufficient. This may either be done gradually by means of the screw splint behind the knee, or forcibly and at once under the influence of chloroform. I prefer the latter method, not only as being the speediest, but as being perfectly safe and effectual. The mode of effecting forcible extension is as follows:—The patient being fully under the influence of chloroform, and lying on his back, the surgeon, standing above him, seizes the foot of the

affected limb with one hand, whilst with the other he steadies the limb just above the knee. He now extends the limb gradually but forcibly; as it comes forward the bands of adhesion in and around the joint will be felt and heard to give way with loud snaps and cracks, distinctly audible at some distance. Should there be much resistance within the joint, the surgeon may apply his own knee or elbow to the upper surface, and thus increase the force with which the limb is acted upon. In this way I have never found any contractions of the kind now under considertion able to resist the surgeon's efforts, or any difficulty in effecting at once the extension of the limb. Nor have I ever seen any evil consequences result. Indeed, it is surprising what an amount of force a joint that has been contracted for any length of time may be subjected to without inconvenience. In these cases it would appear as if the synovial membrane lost its susceptibility to inflame, just as we find is the case with serous membranes that have been the seat of chronic inflammation, and its consequences. Beyond some pain for a few days, and slight heat, easily subdued by cold evaporating lotions, I have never seen any ill consequences arise; but then care must be taken that no inflammatory action is going on within the joint at the time of this manipulation, as it certainly would be followed by injurious results. After the extension has been made, the limb should be fixed on a long splint, well padded, some evaporating lotion applied, and the patient kept in bed for a few days, when, with the aid of a starch bandage, he may walk about.

After the extension has been effected, the position of the head of the tibia may still occasion some deformity. Should this be the case, much good may be effected by the use of an instrument invented by Mr. Bigg, and which I have seen of signal service in cases of this description.

The following cases, out of many, will illustrate the nature and treatment of this kind of deformity :—

Case 4.—A man, 23 years of age, was sent to me last July by Mr. Ede, with contraction of the left knee of eight month's duration, the result of an acute attack of inflammation of the joint. The leg was bent at right angles with the thigh; the knee was nearly rigid, merely admitting of enough motion to carry the foot a distance of two inches. There was no tension of the hamstrings. As the case was a simple though a severe one, the patient was put under the influence of chloroform, and forcible extension practised; with loud snaps and cracks the knee yielded, and the limb came straight. No inconvenience resulted, and the patient was able to leave the hospital in about ten days.

Case 5.—A woman, aged 30, seven months advanced in pregnancy, was admitted under my care last September, for acute articular disease of the right knee. Owing to the pain, she could not bear splints, and the limb was consequently supported on pillows. The disease went on to loosening of the joint, the tibia slipping readily on the

condyles of the femur, with intense pain and startings at night, but with neither synovial effusion or grating. On two or three occasions there was threatening of abscess; but the puffiness went down. As active local and constitutional treatment was adopted as her condition allowed, and the inflammation in the joint being subdued, she left the hospital to be confined. Contraction of the knee now gradually took place; and when she presented herself again in June, ten months after her confinement, the knee was bent at right angles, quite immovable, but not tender; there was some retraction of the head of the tibia; no tension of the hamstrings. She was accordingly put under the influence of chloroform, and forcible extension made with loud crackings and snaps in the joint as the adhesions were broken through; the limb came into excellent position. A tolerably smart attack of inflammation in the knee followed; but was subdued by rest in bed and evaporating lotions; and she was able to leave the hospital in about three weeks, wearing a starch bandage over the knee.

Case 6.—A woman, twenty-eight years of age, sent to me last autumn by Mr. Miles, of Gillingham, has had contraction of the right knee, consequent on inflammation of the joint for twelve years, during which period the limb has been useless, as it is bent at a right angle with the thigh. The leg is consequently much atrophied, but of good length by measurement. The limb was straightened, under chloroform, with loud crunching and snapping noises. The hamstrings offered no resistance, but the whole obstacle to extension seemed to be within the joint. Some severe pain was complained of at the inner side of the joint after the operation. To relieve this, a few leeches, and some evaporating lotion, with rest in bed for a few days, was ordered, by which means it was speedily subdued.

In this case, there is some tendency to genu valgum. I thought it possible, from the length of time that the deformity had lasted, that division of the tendo-Achillis might have been necessary; but as I found that the sole of the foot could be brought flat to the ground, I do not think there will be any need for this operation. I attribute the absence of all retraction of the tibia, in this case, to the patella being in its normal situation; in fact, rather more deeply lodged than usual between the condyles of the femur.

Although, as has already been stated, it is very undesirable to practice forcible extension whilst inflammatory action is still going on in the joint, yet cases do occasionally occur, in which it may be necessary to do so, in order to correct a faulty position into which the limb has fallen, and which, if allowed to continue, might lead to the most inveterate forms of anchylosis. The following case illustrates the propriety of the forcible extension, even in acute disease of a joint.

Case 7.—A woman twenty-two years of age, was under the care of Dr. Garrod, with very acute rheumatic arthritis of the left knee. The joint was so exquisitely tender that she would not allow it to be

touched, but screamed loudly even when a hand was brought near it. Notwithstanding the employment of very active treatment, general and local, the inflammation continued, and the joint became firmly contracted at right angles. I was now requested to see her, in consultation with Dr. Garrod, when we agreed that it would be necessary, in order to prevent faulty anchylosis, to extend the limb under chloroform. This was done, and lateral leather splints were applied without any increase in the inflammation. This was eventually subdued by repeated leeching and the steady exhibition of mercurials; and although the ligaments became elongated, and admitted of very considerable looseness of the joint, she made a good recovery, with a useful limb.

The next class of cases of contracted knee that we have to consider are those in which the hamstrings are at fault, either alone or in addition to those results of chronic inflammatory action within the joint that we have just been describing. In these cases the hamstrings will be found to be tight, and in proportion as the leg is extended on the thigh, they will become tender, until at last all further extension is resisted, apparently by their traction, and not by any sudden check or stop within the joint itself.

Of the division of the hamstring tendons I need say little, more particularly as it has been very fully described by Mr. Tamplin and other writers on deformities. It is as simple an operation as any in surgery, unattended by any difficulty or danger, provided the surgeon introduces the tenotome parallel and close to the side of the tendon to be divided, and cut in a direction from the inside or popliteal aspect toward the skin. After the division of the tendons, it not unfrequently happens that tense aponeurotic bands will be found to stretch along either side, or perhaps down the centre of the popliteal space. This may lead to the erroneous idea on the part of the surgeon that he has not fairly cut the tendons across; but this is an error. The bands alluded to are condensed, sharp-edged prolongations of the fascia lata, formed during the period of contraction of the joint by the retraction and thickening of this membranous expansion. Such condensations as these had better be left untouched, as they will readily stretch out under gradual extension or be ruptured by forcible traction of the limb. If, on the other hand, the surgeon be tempted by their apparently superficial and safe position to proceed to their division, he may be led into a serious dilemma by being brought more readily in contact with the popliteal vessels than is desirable or safe. In these cases the anatomical relations of parts are so much altered by the narrowing of the popliteal space, and by the projection of the head of the tibia backwards or by its lateral rotation, that the surgeon is unable to calculate with sufficient nicety the precise position of the large vessels and nerves in the neighbourhood of which he is about to act, and he might thus injure one or other of these at a time that he thought he was operating at a safe distance from them.

After the division of the hamstrings, the knee does not commonly come readily into the straight position, but forcible extension will be required to break through the adhesions within and around the joint. This may be done at once without inconvenient results, or it may be deferred for a week if the surgeons think better to delay extension after tenotomy. The following cases will illustrate these remarks, and also the absence of inconvenience in immediate forcible extension after the division of the hamstrings.

Case 8.—A girl, eighteen years of age, was admitted under my care in the spring of 1852, with a very severe attack of inflammation in the right knee. The disease speedily went on to abscess of the joint, which was opened. The discharge was profuse, and hectic came on. Amputation was thought advisable, but the patient refusing her consent, it was not practised. As the pain that she suffered was of the most intense character, she would not allow the necessary attention to be paid to the limb in keeping it straight. The knee consequently became gradually bent, until it got to a right angle with the thigh, and the ligaments being softened, displacement of the head of the tibia backwards ensued. After being for many months in a most precarious state, she was at length restored to health by the aid of tonics and a very liberal diet, but with the knee firmly anchylosed, and the heel nearly touching the nates. After the health had been completely restored, means was taken to straighten the knee. It was found in the position mentioned, firmly fixed, with the head of the tibia much drawn backward, and directed somewhat inwards. The hamstrings, which were very tense, were first divided, and then the limb forcibly, and at once, straightened. No bad consequences ensued, and the patient was soon able to walk about on a firm and useful limb.

Case 9.—A woman, 32 years of age, was sent to me, last autumn, by Dr. King, of Colnbrook, with anchylosis of the left knee, of 16 years' duration. The limb had not been put to the ground during the whole of this period. It was consequently much wasted, though nearly as long as its fellow. It was bent at right angles, with some displacement backwards of the tibia, and the hamstrings were very tense. These were accordingly divided on the 4th of July, and the limb forcibly straightened. No inflammatory action supervened, and the patient was speedily able to leave the hospital, walking well.

In some instances, after the division of the hamstrings, the limb may refuse to come into position owing to some osseous anchylosis between the bones. Of this, the following case at present under my care, is an instance:—

Case 10.—A woman, 28 years of age, sent to me by Mr. Wardleworth, of Wrentham, on Oct. 15th, with a contracted knee of 14 years duration, consequent upon an injury by which the patella was dislocated outwards. She walks with great difficulty with the aid of a crutch or stick, not having been able for so many years to bring the sole to the ground. The affected limb (the left) is flexed at right angles, and is

much atrophied from disuse being about one inch less in circumference than its fellow. There is very limited motion in the limb, which can be moved backwards so as to allow about two inches of play in the foot, but cannot be brought forward, the limb being then suddenly checked. The hamstrings are very tense indeed, especially the outer one; the head of the tibia is drawn backwards, the lower end of the femur projecting about an inch and a half beyond it. The patella is firmly fixed by osseous anchylosis to the outer side of the external condyle, so as to leave the inter-condyloid notch free; the head of the tibia is displaced backwards to an extent corresponding to the projection of the femur.

On the 17th of October, the hamstrings were divided in the usual way; the outer one first. The limb was then forcibly extended to about one half of the extent towards a straight line. Further than this I did not think it prudent to venture. Some little inflammatory action followed, which was speedily subdued by poultices; and the patient is to have Mr. Bigg's instrument applied, under the use of which the remainder of the deformity will, doubtless, eventually yield.

Osseous anchylosis of the knee is, I believe, not of frequent occurrence; at least, I have but very rarely witnessed any instance of it, nor does this form of the disease appear to have attracted much attention in this country. In America, Dr. Rhea Barton has successfully removed this deformity by sawing a wedge-shaped piece of bone out of the anchylosed knee, and then bringing the limb into a straight position. Such a procedure might, doubtless, be imitated with advantage in similar cases; and judging by the favourable results that have attended resections of the knee in other diseases, would not improbably be followed by very beneficial results. In the following case of osseous anchylosis of the knee this procedure was not applicable, as the shortened and atrophied state of the limb would have prevented any advantage being derived from bringing it into the straight position.

Case 11.—A girl of dark strumous complexion, fourteen years of age, was admitted under my care in March of this year, for anchylosis of the right knee. When about a year and a half old, she became the subject of disease in this joint, attended by the formation of several abscesses in the lower part of the thigh. Contraction of the limb followed, and she has never been able to put the foot to the ground, or to walk without a stick. On examining the limb it was found that the knee was rigidly anchylosed, the leg being bent at right angles. No motion was permitted between the osseous surfaces. In the popliteal space was a sinus through which a probe touched bare and rough bone at the posterior part of the femur. It appeared that this sinus was habitually closed, but occasionally opened for a few weeks, discharging thin ichorous pus. Above the knee were several cicatrices where former abscesses had discharged. The limb below the knee was much atrophied, and was about two inches shorter than the other. The foot

was also very much smaller than that of the sound limb. As the leg was a great incumbrance in its present position, as there was still diseased bone in the neighbourhood of the joint, and as the limb, from its shortened and wasted condition could evidently never be of use as a support to the patient, amputation of the thigh was practised on the 28th of March. The patient made a good recovery.

On examination it was found that there was firm osseous anchylosis posteriorly between the tibia and femur, and that there was some caries in the latter bone at its posterior part. The condition of the muscles of the limb was, however, one of great interest. At the amputation, it had been observed that the muscles of the thigh, though apparently preserving their normal fulness were fatty and did not retract, the knife passing through them as if it were cutting brawn, and that the femur was soft and atrophied. On making a closer examination, after removal, it was seen that all the muscles of the lower part of the thigh were in a state of complete fatty degeneration. No trace of muscular fibre could be detected in them; they were of a light yellow colour, greasy, but firm. On examining the leg, a considerable deposit of subcutaneous fat was found; but under this the muscles were healthy, though completely atrophied; the gastrocnemius, for instance, was not thicker than a piece of paper. How could this difference between the condition of the muscles above and below the knee be explained? Both sets had been equally disused. It was clear, therefore, that the fatty degeneration of those of the thigh, and the simple atrophy of those of the leg, could not be referred to that cause only. The explanation of the difference of condition seemed to lie in the fact, that the muscles of the thigh had not only been disused, but had been subjected to the effects of the inflammation that had been excited in and around them during the formation and progress of the numerous abscesses that had formed above the knee; whilst those of the leg had not been the seat of any morbid processes. It therefore appeared probable, that in consequence of the existence of inflammation in the lower part of the thigh, coupled with disuse of the limb, a process of abnormal nutrition had been set up, which led to the ultimate degeneration of the muscular tissue, and its conversion into fat; whilst in those muscles, as of the leg, which were simply disused, and in which no morbid action had been established, disuse merely led to simple atrophy. I may observe, that this is the third time that I have observed complete fatty degeneration of the muscles of the lower extremity; one in which I amputated the leg of a woman for disease of the tarsus of seven years' standing, and another in which Mr. Liston amputated for congenital talipes, with atrophy of the limb. Partial fatty degeneration of muscles in the neighbourhood of diseased joints is common enough, but the conversion of the whole thickness of the muscles of a limb into fat is not, I think, of frequent occurrence.—*Lancet, Nov.* 10, *p.* 430; *and Nov.* 17, 1855, *p.* 463.

57.—ON ANCHYLOSED KNEE-JOINT.

By Samuel Solly, Esq., F.R.S., Surgeon to St. Thomas's Hospital.

[Mr. Solly says that since he has acted as surgeon to St. Thomas's Hospital he has only amputated twice for disease of the knee-joint; in every other case, if the disease could not be arrested before the joint was obliterated, he has been successful in procuring anchylosis. The following case affords a good illustration of his method of treatment. The patient was an Irishman, aged 39, admitted March 14, 1854, with disease of the joint, of three years' duration.]

On admission his knee was very much swollen; the swelling was pale, characteristic of ulceration of the cartilages, and hence its familiar title, white swelling. He could bend it partially, but with great pain. He suffered from a constant distressing gnawing sensation over the external semilunar cartilage and corresponding head of the tibia, where there was a lump, distinguishable from the fluctuating swelling of the rest of the joint. During his sojourn here under my care he had eleven issues, made with potassa fusa, and to this constant repetition of the caustic I attribute his recovery. I do not believe that there is so much advantage from the *suppuration* which follows the removal of the eschar as there is from the counter-irritation primarily excited by burning. As a general rule, I prefer, therefore. the repetition of it to an issue kept open with peas. He has not been in the hospital the whole of the time since March, as he was presented during myshort absence from town in August by one of my colleagues. who found him so much better that he thought the joint quite sound. A few days' labour, however, brought him back, when I was obliged to have recourse to counter-irritation. This time I used the seton, as there was very little space for another issue. The knee is now free from pain, and with the assistance of crutches he can get about very well. The two joints are nearly the same size, and the limbs nearly the same length. The tibia is slightly flexed, and in a direct line with the femur. He is to leave the hospital on Tuesday next.

In the above instance, the limb is anchylosed in such a position that it will be very useful to him. Sometimes it happens, either from want of attention on the part of the surgeon, or such severe constitutional irritation accompanying the progress of the disease as to prevent his retaining the limb in a right direction, that the leg becomes anchylosed at such an angle with the thigh that the foot scarcely touches the ground, and at the same time the leg is twisted out of the straight line. If such cases come before you, they must not be considered hopeless. If the disease is entirely gone, and the joint obliterated, you may break through the anchylosing bands, and straighten the limb. Many of you will remember a successful case of this kind last summer. but as some of you did not see it, I will read you the notes briefly.

Thos. B——, aged 20, cheesemonger, was admitted under my care

on the 19th of June, 1855. His left knee is perfectly fixed and immovable; the leg is bent upon the thigh, so as only to allow the toes to touch the ground. The foot and leg are not in a straight line with the thigh, but twisted outwards, so that the deformity is very considerable. The patella is adherent to the external condyle. There is no pain, tenderness, or swelling of the joint; but the limb is quite useless to him. The history is, that this condition of the joint followed an attack of acute inflammation, which was treated during a sojourn of twenty-one weeks in a metropolitan hospital. His general health is good.

In my first examination of this joint I thought that the division of the hamstring muscles would materially assist me in straightening the limb, as they were in a state of great tension; but when he was placed completely under the influence of chloroform, this disappeared, and a true osseous anchylosis alone retained the leg in its false position. This bony anchylosis was, with some force, completely broken through, and the rending asunder of the bones was distinctly audible throughout the theatre with a loud crack, and the limb was straight. After his removal to bed, and before he had completely recovered his consciousness, the limb was firmly bound to a long back splint, with a foot-piece, such as we use for fractured patella. Ordered, cold lotion over the knee; calomel, two grains; opium, one grain, immediately. —Evening: Complains of the tightness of the bandage; otherwise, his leg is easy. The bandage was loosened.

June 24th. The following day there was a little swelling in the situation of the joint but not much; no pain in it since the bandage was altered; pulse 90; skin rather hot; tongue furred; bowels costive. To have a black draught immediately. Now you will naturally be astonished to hear of so little local mischief—of so little constitutional disturbance—after such violence, for violence it was, though necessary for the object to be attained.—Evening: The bowels not opened. Repeat the aperient.

25th. Free evacuation of the bowels; had a good night; says his knee feels very comfortable; pulse 84; no thirst; tongue foulish; appetite good; knee rather swollen.

26th. Ordered the leg to be readjusted on one of Liston's tin splints, in a slightly flexed position.

27th. Less swelling of the joint; a little ecchymosis on the inner side of the knee; bowels open; less pain.

28th. Tongue clean: pulse quiet; no heat of skin; knee easy; swelling abated; appetite good; and sleeps well.

July 12th. Since last report he has gone on well; has been confined to bed. The knee has been free from pain; and there has been no constitutional disturbance. To-day, that is, nineteen days from the date of the operation, the splint was altogether removed. He has not much power in flexing the leg himself; but I can do so to a limited extent. There is no pain or tenderness in the joint. In about a week

from this date he left the hospital quite well, with a very useful limb.—*Lancet, Jan.* 5, 1856, *p.* 5.

58.—*Two Suggestions respecting Excision of the Knee-Joint.* By Jonathan Hutchinson, Esq., Surgeon to the Metropolitan Free Hospital.—In an excision of the knee-joint, which I had occasion to perform the other day, it was my intention to have adopted two precautionary expedients, which, as far as I am aware, have not hitherto been either practised or suggested. On cutting away its condyles the femur was, however, found so extensively diseased, that amputation was necessary, and I consequently lost the opportunity hoped for of testing the practical value of the measures referred to. Under these circumstances I am induced, although untried, to bring them before the attention of surgeons, being more especially encouraged to do so by the high opinion as to their importance, which has been expressed to me by several authorities, to whom they have been mentioned. The first is the *division of the hamstring tendons*, by which I should hope to prevent that repeated displacement of the bones which is often so very difficult to obviate in the after-treatment, and is the source, when it occurs, of so much suffering to the patient. By thus putting the tibia completely at rest there could be no doubt but that apposition would be easily obtained and preserved, and that all risk of non-union would be done away with. The second is the *making of an opening into the popliteal space.* An excision of the knee-joint differs from all other operations of its class, in that it provides no direct escape for the matter secreted in the subsequent stage of suppuration. In several cases which I have seen, the greatest inconvenience was produced by the bagging of the pus into the depending part of the large wound. It often burrows among the muscles, and requires counter-openings, in various directions, for its removal. All this I would endeavour to prevent by making a free depending opening by the side of the tendon of the popliteus, at the time of the operation. A circumstance strongly indicating the desirability of such a practice, and which, in fact, first suggested it to me is, that in several of the cases which have done best after excision of the knee, a sinus into the popliteal space existed prior to the operation.—*Med. Times and Gazette, March* 15, 1856, *p.* 258.

59.—*Excision of the Carpal Bones.*—In a case of partial but very painful disease of the wrist-joint, in Guy's Hospital, Mr. Cock, in place of ordinary amputation of the fore-arm above that articulation, had recourse to the conservative process of removing the two most diseased of the small bones, the magnum and unciform, leaving thus the trapezium and trapezoid (the two other bones of the second row) in contact with the metacarpal bones of the thumb and first finger,

together with the flexor carpi radialis and flexor pollicis tendons, entirely untouched. Such an operation as this removes the chief source of irritation in such cases, according the experience of Mr. Cock, and the chances of all the other bones becoming diseased are thus materially lessened. In country practice especially, the evidence afforded in this case would go to show that all such partial excisions, joined to the use of cod-liver oil, tonics, &c., in preference to mutilation and deformity caused by amputations, are eminently entitled to attention; even if the worst should happen, Mr. Cock remarked to his class, if the strumous or other disease should still make way, and the bones of the first row, the cuneiform, the semilunar, pisiform, or scaphoid become involved, which seldom occurs, we may then carry out the original intention or idea of amputation above the joint. The operation, as performed in this instance, leaves a perfect use of the thumb and fingers, as in the common process of holding a pen, which to many patients, such as clerks, shop assistants, &c., when the disease occurs in the right arm, makes all the difference between being able to be employed in their ordinary occupation or remaining for life disabled and out of employment.

In operations of this nature, it is sometimes objected, that the parts become "matted together," and much motion cannot be expected, a firm fibro-ligamentous structure filling up the space left open; but a very useful hand may be preserved by keeping the fingers somewhat flexed during the process of repair, and the thumb, trapezium, and trapezoid being untouched, the most delicate uses of that part, as in writing, sewing, grasping various bodies, &c., are preserved for the patient. Any kind of a hand being, in short, preferable to no hand at all.—*Lancet, Dec.* 15, 1855, *p.* 578.

60.—*Conservative Operations on the Hand.*—As a small but not unimportant matter of "minor surgery," we have recently seen some five or six amputations of fingers for scrofulous and other diseases at various hospitals—three by Mr. Erichsen, and another by Mr. Fergusson, on the 8th inst. The cases are of interest, as involving a practical point, on which surgeons do not seem well agreed—namely, whether in removing the index, middle, or ring fingers, for instance, it is better to save as much as possible of the phalanx next the palm, or remove the phalanx and the head, and a small part of the metacarpal bone, in order to render the hand less unsightly. Mr. Erichsen, as a rule, removes as much as possible of the bony parts with the diseased finger, and believes he thus leaves a more shapely hand and one more useful. If we take the ring finger, for instance, on which he operated, and leave the first phalanx untouched, it is only in the way subsequently, and always getting injured, ulcerated, and cut; but if, on the contrary, the surgeon, when called on to remove the finger, makes a V incision at the back of the hand, he can easily take away the entire finger and head,

or part of the metacarpal bone, when the little or middle fingers come into apposition, and in a large hand especially the result of the operation can scarcely be noticed, while the entire hand has lost none of its efficiency. We have examined such hands, and found them to fulfil such expectations. Mr. Cock, however, who once tried the plan at Guy's, we deem it important to say, has fallen back in preference on the old method; and Mr. Fergusson, though deeming it right in his case to take away a large portion of the parts, as they were all irremediably diseased, is still somewhat averse to cutting unnecessarily into the palm of the hand, or interfering with the metacarpal bone, as a matter of *convenience*, or leaving a more shapely hand, not of much use he believes—at least to hospital patients. Where the index finger is the one diseased, some surgeons even slice off the metacarpal bone, whether affected or not, by a peculiar slanting or oblique movement of the small saw, a single line of cicatrix marking the original wound; a few stitches to hold the parts in contact and common water-dressing being all that is necessary afterwards to complete the cure. If the metacarpal bone be involved in the disease, there can of course be no question as to its removal, and instances are recently given of excision of the index finger, together with the entire metacarpal bone, with most unexpected and admirable results as to the appearance and usefulness of the hand subsequently.

Mr. Fergusson has pointed out these various operations to his class, and one even still more strange in the practice of Mr. Butcher recently, where the os magnum, the cuneiform, trapezoid, and unciform were entirely removed, the inferior edge of the lunar pared, two-thirds of the fourth and fifth metacarpal bones also excised, four arteries ligatured, yet leaving a useful hand! All our surgeons seemed agreed, however, that the same rule does not hold good with respect to the tarsus as the carpus; indeed, Mr. Erichsen says the rule is the opposite; and in the amputation of toes, the big toe especially, we cannot leave too much bone, as a surface on which the perpendicular axis of the body is to rest, while in amputation of fingers we cannot on the other hand, cut too much away. Mr. Solly, too, as recently noticed, is rather inclined to amputation of the foot, and artificial means for supplying the deficiency, rather than the unsatisfying and tedious processes of excision of the astragalus and calcaneum, and the subsequent treatment so often negative and long protracted.—*Lancet*, *Dec.* 15, 1855, *p.* 578.

61.—*Fractures of the Leg.* By Fred. C. Skey, Esq., F.R.S.—In simple fractures of the leg, whether of one or of both bones, provided there is no displacement or injury of soft parts, a simple pillow, made of soft flock, and of sufficient size to encircle the limb, it is bound to the leg by means of straps, or tied with pieces of roller, or broad tape; and forms a soft wall around the limb, which creates a sensation of

security beyond that of any number of splints, and is exceedingly simple in its application; besides which the pressure is so regular and uniform as to give a degree of comfort, or, rather, the absence of discomfort, which appears to me to justify the resort to this simple expedient in all cases similar to those for which I have employed it—viz., simple fractures of the leg, without displacement, and such, of course, are for the most part transverse.—*Lancet, Jan.* 26, 1856, *p.* 88.

62.—*Painful Stumps after Amputation.*—In a patient with very painful stump after amputation, Mr. Stanley dissected out the nerve and bulbous extremity, which, under microscopic examination, proved normal in structure. At one period, he stated, these bulbs were conceived to be the cause of the neuralgia of the stumps; but he was inclined to agree with Mr. Langstaff and Mr. Spence, of Edinburgh, that they were merely natural products, and, except they got involved in the cicatrix on the face of the stumps, they never caused pain. He stated also a very interesting practical fact, that from considerable experience of amputations with flaps and by the circular mode, and from a comparison of cases in other countries, where the circular mode of amputation was preferred to the plan by flaps,—brought so much into use by Liston,—that painful stumps were much more common after flap amputations than circular amputations; in the latter the nerves were cut off short and buried in the stump; while in long flaps the nerve or bulb almost always comes to be pressed on, causing more or less pain.—*Lancet, Dec.* 29, 1855, *p.* 625.

63.—*On Housemaid's Bursa.* By Fred. C. Skey, Esq., F.R.S.—[There are few diseases more common, or more troublesome than this. It is situated over the upper part of the tendon of the quadriceps muscle or ligamentum patella.]

It may present itself in the form of a rounded swelling, of about the size of the half of a small apple, or it may reach that of a full sized orange; it may be more or less prominent; it may be soft to the touch, conveying the sensation of fluid within moderately thin walls, or of a nearly solid centre, with thick and nearly incompressible walls; it may be attended by an inflammatory condition of the integuments, or the surrounding skin may have undergone no change in respect to colour or condition. If we make allowance for different susceptibilities of constitution, and varying degrees of local congestion, I do not know any form which this disease assumes that is not amenable to treatment by means of a single thread of silk passed through its centre. Sooner or later, from two or three days to ten or fifteen, suppuration in the cyst will assuredly follow, and the matter is either absorbed or the disease assumes the form and character of an ordinary abscess, for which the lancet affords the most effectual relief. Nothing

can be more interesting to the observing eye of the surgeon than the process by which the thick walls of the harder and insensible bursæ appear to melt away under the influence of the local irritant, and assume the character of the bursæ with thin walls and fluid contents. The more insensible the disease, the larger and coarser should be the silk thread. I will not assert that inflammation never follows the introduction of the silk, but I never have known it serious in its degree, and it has always shown itself perfectly tractable on the removal of the exciting cause.—*Lancet, Jan.* 26, 1856, *p.* 87.

64.—ON THE PATHOLOGY AND TREATMENT OF PARALYTIC DEFORMITIES.

By William Adams, Esq., Assistant Surgeon to the Royal Orthopædic Hospital.

[In paralytic deformities, with flaccid muscles, the limb is utterly useless; it dangles or swings to and fro, becomes atrophied, and passes into a state of fatty degeneration. Legs in this condition have often been amputated, but the necessity for this may be prevented by timely treatment.]

In these flaccid, paralytic legs, various contractions and deformities take place in the course of time from adapted atrophy of the muscles and ligaments; but before describing these deformities and the general principles of treatment applicable to such cases, I will advert to the more prominent points in their pathology; as, upon a right comprehension of this portion of the subject will depend your power of forming a correct prognosis. If, on the one hand, you overstate the advantages likely to accrue from operative and mechanical treatment in these cases, the result will be disappointment to your patient, and discredit to yourself; but, on the other hand, if you are unable fully and correctly to prognosticate the effects of treatment, you fail to render that service, which I shall show you it is in your power to afford. The latter, I regret to say, is the common failing in reference to the class of cases we are now considering.

[The flaccid condition of the muscles is seldom persistent after adult paralysis. In children, the muscles either remain permanently in a flaccid condition, or may partly recover, but they never become rigid; rigidity of the limbs in children is never preceded by flaccidity of the muscles.]

By far the greater number of the paralytic deformities which you will meet with in practice (and these are so numerous as to constitute the great majority of all the non-congenital deformities), will be found to result from *infantile paralysis*. Orthopædic practice will frequently bring you in contact with children thus afflicted, in every stage of this peculiar form of paralysis; and, although our treatment is generally

directed against the removal of certain consequences and effects, I believe that all these deformities may be prevented by judicious treatment; in fact, that there never need be another example of deformity in these cases, if the liability to their occurrence, and the mode of their production, were generally understood.

The importance of this subject, in connexion with orthopædic surgery, renders it necessary that I should lay before you a general outline of the history of infantile paralysis; but, for a complete account, I must refer you to the valuable works of Kennedy (*a*), West (*b*), Rilliet and Barthez (*c*), Bouchut (*d*), and Heine (*e*).

Children, between the ages of six months and two years, are especially liable to paralytic seizures, which, like the paralytic affections of the adult, may assume the form either of hemiplegia or paraplegia, or sometimes that of general paralysis, both the upper and lower extremities, speech, &c., being involved. But these are its only points of resemblance.

Infantile paralysis differs from the paralytic affections of the adult in the following respects:—It has a marked tendency to involve only single muscles, or groups of muscles, in the extremities; and these are its most frequent forms. Motion only is affected; sensation remains perfect, or nearly so. This constant relation does not obtain in adult paralysis. The viscera are not implicated. Frequently it is neither preceded nor accompanied by any cerebral symptoms; and when such symptoms do occur, they are very rarely more than of a transient character. It is not attended with any danger to life, even in its most severe forms. Complete recovery very frequently occurs, and often takes place rapidly. This is extremely rare in adult paralysis. Rigidity of the muscles, neither occurs during nor after recovery; they either remain flaccid, where the paralysis is persistent, or resume their healthy condition, where recovery takes place. This is the reverse of what takes place in adult paralysis, rigidity, with partial recovery, being the rule when the patient survives. These peculiarities point to a special pathology of this affection, which, however, has not yet been determined.

Most frequently this form of paralysis occurs during the period of the first dentition, and, with the irritation attending this process, it appears to be connected; less frequently it occurs during the second dentition. But it may occur earlier and later than these processes

(*a*) 'Dublin Medical Press,' September 29, 1841; and also, 'Dublin Quarterly Journal of Medicine,' February, 1850.

(*b*) On some Forms of Paralysis incident to Infancy and Childhood. 'London Medical Gazette,' 1845; and Lectures on the Diseases of Infancy and Childhood. Third edition. London, 1854.

(*c*) Traité Clinique et Pratique des Maladies des Enfants. Deuxieme edition. Tome deuxieme. Paris, 1853.

(*d*) Practical Treatise on the Diseases of Children. Translated by P. H. Bird. London, 1854.

(*e*) Beobachtungen uber Lahmungszustande der untern Extremitaten und deren Behandlung. Stuttgart, 1840.

Cases at later periods recorded, such as one by Dr. West, of paralysis of the portio-dura, with ptosis, double vision with giddiness, for a week, &c.; and a case of paraplegia, following typhus fever, in a girl aged 18 years, mentioned by Rilliet and Barthez, can with less certainty be included in this category.

Whether paralysis of particular muscles or limbs, independent of traumatic lesion, is ever congenital, I consider at least doubtful. The cases related of limbs remaining flaccid and useless in infants born asphyxiated, after difficult and instrumental labours; and of facial paralysis, usually of one side,—sometimes accompanied with loss of power in the corresponding arm,—which, in some instances, have been satisfactorily traced to traumatic lesion, cannot be admitted as examples of this affection.

Infantile paralysis is often, though by no means constantly preceded and accompanied by symptoms of transient cerebral disturbance, such as convulsions or drowsiness. It not unfrequently follows marked febrile disorders, especially measles and hooping-cough; also gastric, remittent, and typhus fever. A slight febrile condition appears very constantly to exist; but the paralysis is said frequently to happen not only without any convulsions or cerebral disorder, but without any symptoms at all, and when the children are in robust health. Under these circumstances, it occasionally occurs in the day-time under the direct observation of the parents; but more frequently we are told that the child was put to bed in its usual health, and in the morning was found to have lost the use of a leg or an arm, or both. The *cause* is, therefore, often very obscure.

Infantile paralysis affects both sexes equally. I agree with Dr. West in thinking that it more frequently occurs in children of weak constitutions, though the opposite opinion is held by Kennedy. Its *duration* is extremely variable. Barthez and Rilliet relate a case of paralysis of the arm in a child, lasting only twelve hours, and other cases of seven and eight days' duration. Improvement frequently takes place in a few weeks, and is often complete in from three to six months.

A tendency to spontaneous and perfect cure is a marked characteristic of this affection. In slight and moderately severe cases affecting single muscles or groups of associated muscles, complete recovery is the rule, and great improvement almost constant; and this I have frequently seen taking place several years after the seizure. Numerous cases of this kind are seen at the Orthopædic Hospital in all stages of spontaneous recovery, without any treatment having been adopted. In very severe cases involving both the arms and legs, partial recovery is the rule; and the arms recover first and more perfectly than the legs, though they have been as completely paralyzed. This has constantly occurred in the cases I have seen, and is the reverse of what takes place in adult paralysis, according to Dr. Todd.

Infantile paralysis most commonly affects some of the muscles of one

leg; very frequently the leg and arm of the same side are affected together; occasionally both legs; and very rarely both legs and both arms. When single muscles are affected, the most frequent to suffer are,—1st, the extensor longus digitorum of the toes; 2nd, the tibialis anticus; 3rd, the deltoid; 4th, the sterno-mastoid. When particular groups of muscles are affected, the most frequent to suffer are,—1st, those on the anterior part of the leg, forming the extensors of the toes and flexors of the foot; 2nd, the extensors and supinators of the hand, always together; 3rd, the extensors of the leg, and with them generally the muscles of the foot in the first class.

In these cases, other muscles than those specified are sometimes slightly weakened, and this may not be uncommon at the time of seizure; but if so they completely recover in a large majority of cases, as in the later stage, when they more frequently come under our notice, they present well-marked examples of paralysis of single muscles and groups of associated muscles. Sir Benjamin Brodie lately mentioned to me a case brought to him, in which the muscles of deglutition were paralyzed in a child. The attempts to swallow were very painful to witness. He did not know the result, but death from starvation probably took place.

With respect to the *morbid anatomy* of this affection, or the nature of the structural changes upon which it depends, very little is yet known. As it is seldom, if ever, a fatal disease, except, perhaps, under the circumstances mentioned in Sir B. Brodie's case, opportunities for making post-mortem examinations in recent cases must be extremely rare. Only three have been recorded. Two by Barthez and Rilliet; one of paralysis of the arm, and the other of paraplegia; an attentive examination of the brain, spinal cord, and nerves in these cases did not reveal any appreciable lesion. The other case, recorded by Dr. Fliess, and alluded to by Barthez and Rilliet, was also one of paralysis of the arm, and a simple congestion of the membranes of the spinal cord on a level with the brachial plexus was found; the structure of the cord, the brain, and the nerves was perfectly healthy.

These examinations confirm the opinion to which we are led by the clinical history of these cases, viz.:—that this peculiar form of paralysis generally occurs without any serious and irreparable damage to the nervous centres and nerve-trunks. Further investigations, however, are required before we can form any definite opinion as to the essential nature of this affection. It appears probable, that local congestion of the nervous centres or nerve-trunks, accompanied in some cases with effusion, which subsequently becomes absorbed; and in other cases, with some local failure of nutrition under a general, though perhaps slight febrile condition of the system, would be the ordinary phenomena; but the frequent absence of cerebral symptoms, even in the most severe cases, with extensive and persistent paralysis, is very remarkable.

M. Bouchut describes this affection under the title of "Myogenic, or Essential Paralysis," and, except in cases preceded by febrile con-

vulsions, regards it as a local affection, "accompanied by an alteration of the elementary tissue of the substance of the muscles." He considers it to depend most frequently upon exposure to cold,—as from the children wearing low dresses, being put to bed without warm night-dresses, throwing off the bed-clothes, &c.; and observes, that children, under these circumstances, are "most usually attacked with this paralysis, the nature of which is, according to my opinion, entirely rheumatic." The evidence of the myogenic and rheumatic nature does not appear to me sufficiently conclusive; and I think that the children who, in restless nights, throw off the bed-clothes, &c. are frequently suffering from febrile or eccentric irritation, during which a local congestion—sufficient to produce the immediate effect, and in some instances followed by a failure of nutrition, rather than active inflammatory mischief,—would be not unlikely to occur. Many children, apparently in good health, become heated and feverish during the night; the skin, especially of the face, being hot and burning, and the head freely perspiring. I think it probable also that in many of these cases, the children have fits which pass away unnoticed in the night. The *morbid anatomy* of this affection, and therefore its essential nature, must be considered as not yet determined.

The *diagnosis* is free from difficulty; the special symptoms above enumerated will enable you at once to recognise the case as belonging to this peculiar form of paralysis.

The *prognosis* which you will be called upon to give, will be looked for with the greatest anxiety; as the sudden, alarming, and apparently dangerous nature of the attack when severe, will excite the worst apprehensions. You may however, assure the parents that there is little or no danger to life, even in its worst forms, when almost all the voluntary muscles of the body are involved. And you may also assure them, that no permanent affection of the brain, or liability to a second attack, as in adult paralysis, need be apprehended.

With respect to the recovery of voluntary power in the extremities or muscles involved, your prognosis must always be very guarded. Although Kennedy supposes that the prognosis may be based upon the mode of seizure, it appears to me that no general rule with respect to this, or any other event has yet been discovered. The extent and intensity of the paralysis will influence your opinion to a certain extent. In cases in which both arms and both legs are involved, complete recovery rarely, if ever, takes place; but great improvement generally occurs, the arms recovering more completely than the legs. In cases of less severity, complete or partial recovery is the rule; but a useful amount of improvement cannot absolutely be relied upon, as it is occasionally persistent through life, though a few muscles only are involved. Complete recovery is, however, much more frequent than generally supposed, as proved by the large number of deformities we meet with in which the muscles are found in a healthy condition, (so far at least, as is consistent with the amount of deformity,) although the paralysis of one or more muscles during infancy laid the foundation of the mischief.

Speaking generally, however, your prognosis must be cautious and guarded with respect to the restoration of voluntary power, when the cases are seen at the time of, or soon after the seizure; and if seen at a later period, when atrophy and deformity have occurred, your opinion must depend upon the exact state of the muscles, and any tendency that may be exhibited towards improvement. It is generally supposed that unless recovery takes place within a few months, the paralysis is persistent through life, but I have seen many cases in which improvement has commenced several years after the seizure, and proceeded to a very useful extent. Bearing in mind this fact, your prognosis must vary according to the circumstances existing at the time in each case.

The *treatment* of this affection at the time of seizure, scarcely comes within our province, and you will do well to consult the able works to which I have above referred. But I may remark that as the nature of the structural changes producing the paralysis has not yet been determined, and as the circumstances under which it occurs differ so widely, the treatment must vary according to the state of the patient at the time, and the apparent cause, when such exists. There are frequently no indications of the approach of so formidable a disease, and at the moment of seizure the mischief is already accomplished. If irritation from teething exists, the gums may be lanced, but not otherwise. Any existing febrile irritation must be allayed; and the warm bath, purgatives, and counter-irritation may be used. Alteratives may be employed, but whether mercurial treatment is useful appears very doubtful; it has failed where I have known it to be used most freely. Dr. West recommends purgatives and tonics. Dr. Fliess advises cupping in the region of the nervous centres corresponding to the part affected.

[When the state of paralysis does not disappear in a few months, a series of changes takes place, which constitute the second stage of this affection and terminates in the production of deformity.]

Mode of production of deformity.—The consecutive deformities of the feet and extremities which occur in the second stage of *infantile paralysis* are produced by adapted atrophy of certain muscles, principally the opponents of those which have suffered paralysis. For example, if the anterior muscles of the leg and foot are paralyzed, the anterior portion of the foot drops, and the heel is raised;—not by active contraction of the posterior muscles, for division or paralysis of one set of muscles does not excite active contraction in the opponent muscles, but in consequence of the position assumed by the foot from its mechanical relations with the leg. The posterior muscles are no longer required of their normal length, nor are they ever called fully into action. They, therefore, accomodate themselves by a process of "adapted atrophy," as described by Mr. Paget, to their required length; and a permanently-raised condition of the heel, producing

deformity, results. When both the anterior and posterior muscles are paralyzed, the same process takes place, but at a slower rate. The same method applies to all other parts. When the paralysis is persistent, and involves all the muscles of the leg, a general atrophy, with fatty degeneration and arrest of growth, takes place, as in the case above adverted to, that was examined by Mr. Quekett. Useless "swinging" legs, in this condition, are sometimes seen two inches or more shorter than the opposite legs.

These cases form the most numerous examples of the class of deformities we have been specially considering, viz., those *with flaccid muscles.*

The kind of deformity produced will vary according to the muscles involved in the paralysis. The most frequent from is that of talipes equinus. 2nd, equino-varus; 3rd, equino-valgus; 4th, calcaneo-valgus; and 5th, talipa varus. When both feet are affected, equino-varus of one foot generally coexists with equino-valgus of the other.

[What can be done in these cases? Many surgeons object to treatment, because, they say, if you remove the deformity the paralysis remains; but it is from these very hopeless and essentially incurable cases that some of the most striking, most brilliant, and most valuable results of orthopædic surgery are obtained.]

The *treatment* in all these cases essentially consists in the removal of existing deformities by tenotomy and mechanical appliances, and subsequently compensating for the paralysis or loss of power by mechanical support. A fortunate circumstance in the pathological history of these cases enables us to effect these objects with remarkable success. I allude to the state of the muscles surrounding the hip-joints.

In many cases in which the rectus and other muscles of the leg are paralyzed, the muscles in the neighbourhood of the hip-joint are not involved. And in the cases of infantile paraplegia, as well as those of general paralysis, which I have described as involving both the upper and lower extremities, &c., the rule appears to be that the muscles surrounding the hip-joints so far recover, in the course of a few years, as to be available in the effort of progression, even when all the muscles below the hips remain paralyzed, or in a state of very imperfect recovery. Hitherto I have seen no exception to this rule; and availing ourselves of this favourable condition, you will at once perceive how far it is practicable, by timely interference in appropriate cases, to enable such patients to walk. The deformities of the feet can easily be cured, and the feet afterwards retained in their normal position by mechanical supports, which must be extended to the thighs, and adapted so as to render the knee-joints immovable in the erect position; in fact, mechanically to anchylose the knee-joints. It can be so contrived that the knee may be bent at pleasure in the

sitting position, and again straightened on the erect position being assumed.

The general result and advantages of this mode of treatment may be well illustrated by the following case of a lady, whom I was requested to see by my friend, Dr. Goolden, of St. Thomas's Hospital, on the 5th of March, 1852, and found in the following condition:—

M. M. R., aged 39, of small stature, and very thin. She was totally unable to walk, or even to stand, either with crutches, or with any other assistance, in consequence of the completely paralytic condition of both her legs, which had followed an attack of paralysis at the age of 5 years. She was always carried about by a servant, and in the drawing-room and garden made use of a *wheel-chair*. Both her legs were atrophied to an extreme degree, with the muscles in a flaccid condition, and the feet contracted in the positions represented in figs. 1 and 2, viz.:—equino-varus of the right, and equino-valgus of the

Fig. 1.

Paralytic Talipes, Equino-varus.

Fig. 2.

Paralytic Talipes, Equino-valgus.

left. She had no power whatever in any of the muscles of the left foot and leg below the hip; excepting a very feeble power in the hamstring muscles. In the right leg there had been a slight general return of power in the muscles, but the rectus muscle of the thigh was now as powerless as that of the left side, (probably from rupture of the ligamentum patellæ, the result of an accident), so that both the legs were in the so-called "swinging" condition; without the least power of extension. Yet voluntary power existed in the muscles around the *hip* joints, sufficiently to enable the patient to bend and extend those joints with tolerable force. She also suffered from a lateral curvature of the spine to the left side, of extreme severity, and accompanied with very severe symptoms, to be hereafter alluded to.

History of the case.—This I will give you from an account written by herself:—"When 5 years of age, I was suddenly seized with an attack of paralysis, affecting both arms and both legs, while sitting on a

chair in the daytime. It was found that I could neither get off my chair, nor even move a finger. After some days I recovered the use of my hands and arms, but to this day the left arm is weak. After some months I so far recovered the use of my legs as to be able to walk with the assistance of an arm, and a stick in my right hand, pressing it against the right hip. From the time of my illness, I used to lie almost all day on a reclining board. Between 8 and 9 years old, I was examined by Dr. Arnott and Mr. Cline, and pronounced straight in the spine, but as they feared my mode of walking might curve the spine, they recommended crutches. My own impression is that, at this time, my right heel did not touch the ground, and that the left ankle turned over in the way you found it, though not nearly so much. I now wore instruments on my legs for three years; they were invented by Dr. Arnott.

"At 12 years of age, my spine must have been curved, because Dr. Arnott ordered me to use his *tripod*, a sort of crane on a three-legged stand placed behind a small chair with an upright back; a steel arch went over the head, with a strap under the chin; a strap was also passed under each arm, both head and arms were then balanced by weights hung over pullies. In this machine I used to sit the whole day, with the exception of the time passed in exercise, or on the reclining board, until I went to France in 1829 (then 16 years of age). I could at this time walk about a mile, and ride perfectly well. I was thrown from my horse, and broke my right knee; and after this accident, always *swung my legs* in walking.

"In August, 1830 (then 17 years of age), I had fainting fits, and used to remain insensible for an hour and a-half or two hours at a time. Then I was seized with those spasmodic attacks described to you by Dr. Goolden; and from this time I never walked, excepting one day after my return to England I managed to walk across the room."

This case was evidently an example of the most severe form of infantile paralysis, involving both the upper and lower extremities, and probably, to a less extent, the muscles of the trunk. As far as I could learn, the attack was neither preceded nor accompanied by any cerebral symptoms, nor marked febrile attack. Nearly perfect recovery took place in the upper extremities, as usual; but very partial improvement occurred in the lower extremities, and this was almost entirely confined to the right leg. From the fact of her having walked, there can be no doubt that the rectus muscle of the right leg had partially recovered, together with the other muscles of this leg, but the accident referred to (probably rupture of the ligamentum patellæ, which I found more attenuated and longer than that of the opposite leg, and the patella displaced to some extent upwards and outwards) reduced this leg to the same "swinging" condition as that of the left, in which no recovery had taken place. Loss of health followed this unfortunate accident, which deprived her of the little

muscular power she possessed in her legs available for the purpose of progression.

The fainting fits and spasmodic attacks, in which Dr. Goolden tells me the diaphragm was affected so as to cause the most serious apprehensions, probably depended upon spinal irritation produced by a rapid increase in the spinal curvature. The effect was, that from the year 1830 to the year 1852, when I first saw her, a period of twenty-two years, she had not been able to walk, even with any amount of mechanical assistance that could be rendered her.

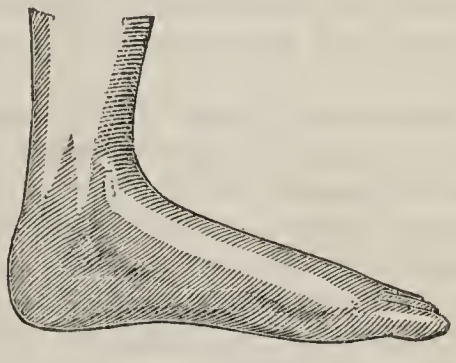
Relying upon the favourable condition which I above adverted to, viz.:—the existence of voluntary power in the muscles in the neighbourhood of the hip-joints; the psoas, iliacus, glutæi, &c., I undertook the treatment of this case without the least hesitation, and promised to make her walk after a manner—stiff-legged I may call it—but at any rate sufficiently well for the more important purposes of exercise and health.

By division of tendons and mechanical treatment, the feet were easily brought into their normal position, as exhibited in Figs. 3 and 4, in less than three months; and, with the assistance of steel sup-

Fig. 3.

Cure of Equino-varus shown in Fig. 1.

Fig. 4.



Cure of Equino-valgus shown in Fig. 2.

ports, extending above the knee-joints, she was enabled to walk, to the extreme surprise of her oldest friends, who had always heretofore seen her either carried in the arms of a servant, or lying down, or sitting in a wheel-chair. For the purposes of confidence and balance she usually walked between her two sisters, and in a few months could take exercise for half-an-hour at a time. Muscular power improved, and with it came fresh accomplishments, such as walking up and down stairs without other assistance than taking hold of the bannisters, &c. She rapidly gained flesh, and her general health greatly improved. A new life seemed to open itself to her. The pleasure of being able to walk to church, visit her friends, see exhibitions, and in various ways to enjoy many of the pleasures of life to which she had been a stranger, may be better conceived than described.—*Med. Times and Gazette, Dec.* 15, *p.* 589; *and Dec.* 29, 1855, *p.* 641.

65.—ON THE PATHOLOGY OF THE REPARATIVE PROCESS IN TENDONS, &c., AFTER SUBCUTANEOUS DIVISION.

By William Adams, Esq., Assistant Surgeon to the Royal Orthopædic Hospital.

[By experiments on rabbits we find that the tendons become re-united by a newly-formed connective tissue, which gradually assumes the structural characters of the old tendon; in fact, a perfect reproduction of tendon takes place, and this may sometimes be found to the extent of two inches.]

In external form, definition, and size, it precisely corresponds to the tendon which it unites; and externally the continuity becomes after a few months so perfect, that the line of junction cannot be recognized. On a longitudinal section, however, the line of junction of the old with the new tendon can be recognized at the latest period to which these experiments extend, viz., the sixty-second day; and I may here remark that I have found this equally apparent in a human tendon three years after division. The old tendon retains its opaque, dense white, glistening character; while the new tendon possesses a certain amount of translucency, and is of a uniformly grayish colour, without the characteristic glistening appearance of the old tendon. The mode of connexion is by the finest dovetailing of the old and new tissues.

Reparative Process in Human Tendons.—The paucity of facts bearing upon this very interesting inquiry, I have above adverted to. In the Museum of the College of Surgeons are three specimens of human tendons, after division for the cure of congenital varus, presented by Mr. Tamplin, of which the following description is given in the catalogue, vol. II. "No. 358, 359, 360:—The tendo-Achillis, and the tendons of the anterior and posterior tibial muscles of a child 19 months old. They were all divided by subcutaneous section nearly eighteen months before death. No trace of the division is discernible in any of them; their outlines and surfaces are regular, and their texture is uniform; even with the microscope no part could be found different from the rest."

Mr. Paget observes:—"In the instances of divided human tendons less retraction takes place than in those of the lower animals. The connecting bond is, therefore, comparatively shorter; and it is yet more shortened when, like a scar, it contracts as it becomes firmer."

In reference to the ultimate disposal of the new connecting tissue, Mr. Tamplin quotes the account given by Stromeyer, in which are the following observations:—"The idea that the elongation of the muscle is effected through the cicatrix, is a false one; the extent of the substance, or cicatrix, is quite inadequate for this purpose. In some cases of *pes equinus*, the gastrocnemii are two or three inches too short; and, in *wry-neck*, the sterno-mastoid is equally short, yet the cicatrix, after

the cure, is but a few lines long. The elongation of the muscle must be effected in these cases at the cost of its contractility, and thus the incision of its tendon acts, not only on its mechanical, but also on its vital, properties; and, by the temporary diminution of its irritability, its contractile power is diminished, and any increase of it prevented." Mr. Tamplin then remarks:—"The views of Stromeyer are, I believe, on the whole correct. I am of opinion, however, that the new substance will, and does, admit of sufficient extension to compensate for the greatest amount of shortening met with in any deformity: for I have repeatedly, in cases of talipes equinus, found the new connecting medium full two inches in length within three or four weeks following the operation, especially in those cases where there is no resistance in the joint, and where the foot admits of being rapidly brought into its normal position." . . . "It is true, as a general rule, that the cicatrix, after the cure is effected, measures but a few lines, oftentimes only a line, in thickness, provided proper care has been taken during the treatment. . . . The elongation in congenital cases, and also in non-congenital cases, of young subjects, is undoubtedly effected eventually at the cost of the contractility of the muscle, but not primarily; this is a secondary result, for no new uniting medium can by possibility possess the power of drawing down the muscle, any more than the newly-formed granulations following a burn can do. The cicatrix, as it contracts, certainly does so, but after the foot is brought into position; and hence the linear cicatrix. The force of the contraction of a cicatrix is sufficiently evident in the instances of burns alluded to, not only to draw down and overcome one muscle, but even a set of muscles, as the extensors of the head and neck, or of the arm, and other parts." Mr. Tamplin then describes two cases, in which he had examined the Achilles and other tendons, in one case a year, and the other eight months, after division. In all, the reparative process is said to have been so perfect, that no trace of their having been divided could be detected externally or in a longitudinal section. In the section, "a sort of globular appearance in one spot" is alluded to with some doubt as to its import.

You will perceive that the general tendency of all these observations is to the effect that the newly-formed connecting tissue is not a permanent structure, but that "after the cure" a process of contraction and absorption takes places in it, and proceeds till the whole, or nearly the whole, of it is absorbed, and "a linear cicatrix" produced by the previously-divided extremities of the old tendon again coming in contact with each other. According to this view, also, the required length is ultimately obtained at the expense of the muscular structure. Now, so far as my own dissections in the human subject have enabled me to form an opinion, and I have examined, *post mortem*, several cases at periods varying from a fortnight to three years after the division of the tendons,—in addition to several specimens in Mr. Lonsdale's collection,—I have arrived at a precisely opposite conclusion.

I have seen nothing to support the idea that this material is absorbed, and "a linear cicatrix" produced.

The preparations in the Museum of the College of Surgeons above adverted to, were not examined when recent by longitudinal section, the only method by which, at a late period, the difference between the old and new tendon can be recognized, as explained in my description of the rabbit's tendon on the fifty-fourth day after division. Small portions have been removed from different parts of these tendons for microscopical examination; and as showing the absence of any minute structural differences, the account given is valuable; but beyond this they have no bearing upon the general question, as to the temporary or permanent nature of the newly-formed connective tissue. The tendo-Achillis of the opposite leg should have been preserved, to demonstrate any difference in the relative length of these tendons.

In all the cases I have examined, a considerable length of new tendon, varying, of course, in every instance, but sufficient for the purpose required, has been clearly traceable; and in the case at the latest period after division, viz., three years—the specimens were the Achilles-tendons removed from a lady, aged 39 at the time of operation, who died of rapid phthisis—the length of new tendon inserted between the divided extremities of the old tendon, which are still traceable, is seen to be $1\frac{1}{4}$ inch. I believe, therefore, that whatever amount of new connective tissue, or new tendon—as I prefer to call it, for the very close resemblance of its structure when perfectly formed, to that of the old tendon, fully justifies the expression—is formed, remains as a permanent tissue, and that through its agency the required elongation is maintained.—*Med. Times and Gazette, Jan.* 26, 1856, *p.* 80.

66.—ON THE TREATMENT OF TALIPES EQUINUS.

By William Adams, Esq., Assistant Surgeon to the Royal Orthopædic Hospital.

[The treatment of these cases must be both operative and mechanical combined, it will be useless trying the one without the other. The only important tendon requiring division is the tendo-Achillis; the tendon of the plantaris is generally divided in the same section. In some cases it may be also necessary to divide the plantar fascia and short flexor muscle in the sole of the foot. The operation is simple and free from danger, when skilfully performed, and presents a striking contrast to the severe and unscientific proceedings which were formerly adopted in these cases.]

If tenotomy is at the present day occasionally followed by dangerous inflammation, of which I have witnessed several examples,—and, moreover, a little local inflammation is by no means an uncommon event in the practice of some surgeons,—it is because the value of the true subcutaneous character of these operations is not yet fully appre-

ciated. I have very frequently seen the operation commenced well, the puncture and size of knife being sufficiently small, but, by the time the tendon has been divided, the puncture has been increased at least two or three times its original size. By such a proceeding the true subcutaneous character of the operation is immediately lost, and the chances of inflammation proportionably increased. To avoid this accident, it is generally recommended that you should use a knife which only cuts for about five-eighths of an inch from the point, the rest being blunt and rounded. This precaution may be useful to those who are unaccustomed to such operations, or have but little tact in operating; but I have seen a large tendo-Achillis scratched through rather than cut, by such a cautious knife, and will show you how to avoid enlarging the cutaneous puncture without curtailing the edge of the knife, and thereby diminishing its usefulness. To cut a tendon cleanly and quickly, you must use a cutting edge considerably longer than the breadth of the tendon; the cutting edge I use for an adult varies from an inch to an inch and a quarter in length.

Mode of dividing the tendo-Achillis.—Place the patient on the stomach, with the foot hanging over the edge of the table or bed, and let an assistant put the tendon on the stretch by endeavouring to flex the foot, while the leg is kept in an extended position. He must be prepared instantly to relax this tension, as the section of the tendon is completed. Then introduce the tenotomy knife with its flat surface parallel with the tendon, close to the inner or outer edge of the tendon, according to the leg operated upon, and rather towards the posterior surface, than on its lateral aspect, as usually done. Pass the knife obliquely downwards, keeping the point close to the tendon, beneath which you may then carry it to the opposite side, and in this movement you will, of course, depress the handle to a horizontal direction. Now turn the cutting edge towards the tendon, and divide it transversely from the internal to its external surface. By this method you gain a most important *lever-advantage* in cutting the tendon, and avoid all risk of enlarging the cutaneous puncture, as the pressure at this point is rather on the back than the edge of the knife. If you hold the knife horizontally, and enter it at the lateral aspect of the tendon, and rather below it, as is frequently done, you will sometimes meet with considerable difficulty in dividing a tough Achilles tendon, because you operate upon the tendon mechanically to the greatest disadvantage; the tendon yields before the knife, without division, and in this way I have seen a surgeon almost despair of cutting it, change his knife—which, undeservedly, gets all the blame—introduce a new one, and then succeed only after a great deal of perseverance by a sort of scratching with the point, which must be directed upwards, while the handle is depressed to a corresponding extent. In such a proceeding the cutaneous puncture is generally much enlarged, and a risk of subsequent inflammation incurred. Tendons cannot be divided with safety to the patient unless they are divided neatly, quickly, and

without disturbance to the surrounding tissues; and the puncture should never exceed an eighth of an inch in length. In infants the tendons readily give way before the direct pressure of a sharp knife, in the movement I have described to you, but in adults a little cutting manipulation is required.

A sudden, audible snap and yielding of the joint indicate the division of the tendon, when the muscular structure is in a healthy, or a nearly healthy, condition, as in the infantile cases and those of spasmodic origin; a perceptible separation of the divided extremities also occurs, leaving a gap at the seat of operation; but where advanced atrophy and degeneration of the muscle have taken place, as in cases of paralytic origin, and, in cases of adult varus, no audible snap occurs; and, in the last class of cases, as well as in those of the most severe form at younger ages, the separation is extremely slight, from the condition of the muscles and the ligamentous rigidity of the joint.

The division of the tendo-Achillis is *not necessarily followed by hemorrhage.* I have frequently divided it, and sometimes, in two or three cases in succession, without even staining the knife with blood; this depends very much upon the care with which the point of the knife is kept close to the tendon. It is rare to see more than two or three drops of blood follow this operation when carefully performed.

Pressure after Division.—On the instant of withdrawing the knife, cover the wound with your finger, and immediately apply a small compress of lint, held in position by a strip of adhesive plaster. This prevents effusion and infiltration at the seat of the wound. Then bandage the foot and leg up the calf, and bind the foot, in the same position in which it was before the operation, to a padded splint adapted to the deformed shape of the foot; a splint made of tinned sheet-iron is most useful, as it can readily be bent to any shape required. In talipes equinus a nearly straight splint should be applied along the dorsum of the foot and in front of the ankle-joint.

Another mode of Operating.—Some surgeons recommend the tendo-Achillis to be divided by passing the knife flatwise between the tendon and skin, and then cutting through the tendon from behind forwards. Mr. Fergusson advises this method, but I very much prefer the mode I have described to you.

Risk in each Method.—Each plan has its liability to an important accident. In the division from within outwards, you may also divide the skin, and make a large open wound—an accident which I have seen occur two or three times. This may result either from a too vigorous and incautious operation, or from your assistant not being on the alert instantaneously to cease flexing the foot on the division of the tendon; and also, in the event of a spasmodic contraction of the anterior muscles taking place, from your assistant not instantly controlling this by a strong counter-effort of extending the foot. While, therefore, your assistant is making a strong effort in one direction, he

must be prepared suddenly either to cease, or to reverse the effort in an opposite direction—close adhesions between the tendon and skin, either the result of a previous division, or inflammatory mischief which may have produced the deformity, will especially increase the liability to this accident. In dividing the tendo-Achillis from without inwards, there is a risk of puncturing the posterior tibial artery, an accident which I once saw occur in a boy about 12 years of age, and I have heard of its occurring again in the practice of the same surgeon; the jets of blood left no doubt as to the nature of the accident in the case I witnessed, but I believe it did well under pressure.

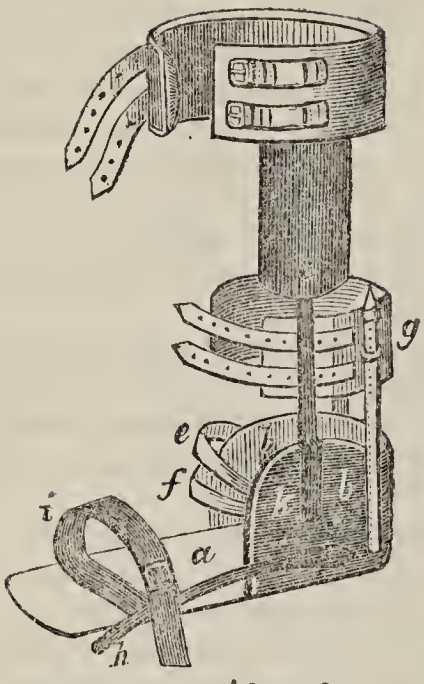
After the operation, the patient, if an adult, should remain on a sofa for the remainder of the day, with the leg resting on a pillow in a flexed position. On the following day he may walk about, with the assistance of a pair of crutches. The foot should be kept warm if paralytic.

Mechanical extension should be commenced on the third day in infants, and also in persons of more advanced age, provided that the nutrition of the leg is uninterrupted; but in paralytic cases not till two or three days later. By that time the cutaneous puncture will be healed, though this should not regulate the practice so much as the probable activity of the reparative process. The foot should be bandaged and placed in a Scarpa's shoe, having a joint moving in the direction of flexion and extension, corresponding to the ankle-joint, and regulated by a cog-wheel and screw. If any lateral inclination exists, a second cog-wheel joint, moving in the direction of inversion and eversion should be added (Fig. 1). This modification, I believe, was first adopted by Mr. Tamplin, and the form of boot now in use at the Orthopædic Hospital is that represented (Fig. 1); but I have found several modifications represented in Fig. 2, of practical utility, and therefore employ this form of apparatus.

Rate of extension.—By means of this apparatus the foot may be gradually brought into its natural position. The rate at which it is desirable to accomplish this, should be regulated by the activity of the reparative process in the divided tendon; but practically it is often limited by the ligamentous rigidity of the articulation. In well-nourished infants, the full length required in the divided tendo-Achillis should, according to my observation, be obtained in a fortnight if practicable; in a well-nourished leg in the adult, it should be obtained in from three to four weeks; but in atrophied paralytic limbs it should not be obtained in less than from six to eight weeks.

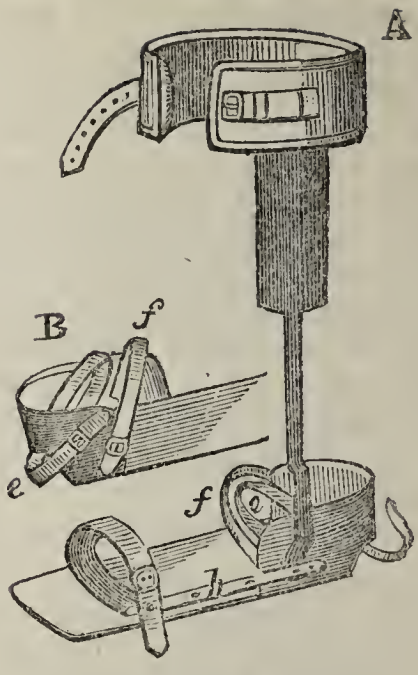
The *object*, I think, is not so much to elongate or stretch the new material uniting the divided extremities of the tendon, as generally supposed; but rather to regulate the length of new material, or, as it may be called, the new tendon, while we have the opportunity of so doing; and the rate at which this is to be accomplished, must have reference to the activity of the reparative process, and to the length of new tendon required.

Fig. 1.



Scarpa's shoe now used at the Orthopædic Hospital.

Fig. 2.



Scarpa's shoe as modified by Mr. Adams.

Fig. 1.—*a*. Sole formed of iron, covered with leather. *b. b*. Heel plate attached to *a*. *c*. Perpendicular bar, with a padded side plate fixed to its upper part, to diffuse pressure when the foot is everted. *d*. Circular strap, containing a semicircular steel plate in its posterior half, which resists the action of the flexion and extension cog-wheel *k*, and holds the perpendicular steel in its fixed relation to the leg. *e. f*. Straps by which the heel is held firmly in the shoe. *g*. Circular strap fastened above the ankle, and connected to the heel-plate by two straps, to assist in holding the heel firmly down. *h*. Horizontal steel spring fixed to the heel-plate. *i*. Strap which passes round the anterior part of the foot and draws it outwards towards the horizontal spring *h*. *k*. Cog-wheel by which the flexion and extension movements of the foot from the ankle-joint are commanded. l. Cog-wheel, by which inversion and eversion of the foot are to some extent commanded.

Fig. 2.—A. and B. The parts modified are lettered to correspond with Fig. 1. The circular ankle-strap *g*, is dispensed with as useless. *b*. The heel-plate is much diminished in size, to avoid pressure in lateral movement. *e*. This heel-strap has its power greatly increased by passing directly backwards through an aperture in the heel-plate and sole, instead of transversely across the front of the large heel-plate, as in Fig. 1. The aperture is also useful, in enabling you to ascertain whether the heel is in its place. *h*. A straight bar is substituted for a spring; it acts as well, and is less in the way.

This important part of the process must therefore be left to the judgment of the surgeon, in cases in which there is but little resistance from the adapted shortening of ligaments; but if this exists, as in some cases of equinus of long standing in the adult and in severe congenital varus, it will not be possible to proceed at the desired rate, and it may even become necessary to divide the tendon a second time, before the required length be obtained.

In the mechanical treatment of talipes equinus, care should be taken to carry the foot beyond the right angle with the leg, in fact it should be carried to the angle natural to the period of life at which

the operation is undertaken. When one foot only is affected, this may be ascertained by comparison with the healthy foot.

Disposition to valgus.—In some of these cases, towards the end of treatment, a disposition to turn outwards is observed in the foot, which would therefore assume the position of talipes valgus. This, I think, most frequently depends upon the flat form of the sole of the Scarpa's shoe, and the length of time the treatment of these cases has generally occupied. In other words, I regard it as an effect of the long-retained position imposed by the mechanical treatment adopted. It may, perhaps, occasionally result from a disposition to muscular contraction. The tendons of the peronei muscles become tense, and Mr. Tamplin advises their division, but I have found this condition yield to passive exercises, and a little altered adaptation of the Scarpa's shoe.

Passive exercises during extension.—During the latter part of the period occupied by the mechanical extension, when this is tedious from the amount of ligamentous resistance, passive exercises should be employed, not only with the view of preventing the stiffness of the joint which is always produced by long-retained position, and which may even result in another kind of deformity as above alluded to; but of preserving the muscular and other structures in a healthy condition, and to some extent assisting in the restoration of the natural form of the part. The movements required in cases of equinus, are flexion and extension of the foot, which in children I direct the parents to do for a quarter of an hour or more, twice a day. The period at which this should be commenced must depend upon the condition of the foot. When much resistance has to be overcome, I am not an advocate for intermitting the mechanical extension employed. In the cure of severe contractions, the good seems to be done by constantly applied, and well regulated, mechanical extension. I would therefore delay the passive exercises, until the case is advancing towards a cure. In severe cases motion is always attended with more or less pain, which in children appears to be referred to the neighbourhood of the tendon, or around the ankle-joint, but in adults is always referred to the anterior part of the ankle-joint. This may, perhaps, depend upon the edges of the articular surfaces of the bones—which I have explained to you, become more or less denuded of their articular cartilage in the adult—coming into contact with each other. In a little time, however, and by cautiously regulating the exercises, this completely disappears, and the functions of the joint are restored.

Use of foot to commence.—When all the deformity has been removed, and the reparative process in the divided tendon appears to be sufficiently perfect, the patient may begin to use the foot in walking; and then it is the invariable practice at the Orthopædic Hospital to support the ankle-joint, by attaching one or two side-irons to the boot, having each a joint, when two are used, corresponding to the ankle-joint, and connected above by a narrow semicircular steel plate, which

rests against the calf of the leg, and the extremities of which are connected by a strap passing across the front of the leg, which is thus encircled. I am not, however, in the habit of using this support where all the muscles retain their power, unless a relaxed condition of the ligaments of the ankle-joint and foot should exist, or there should be an inclination to any lateral deviation in the foot.—*Med. Times and Gazette, Feb.* 23, *p.* 181, *and March* 29, 1856, *p.* 306.

67.—ON CONTRACTIONS OF THE KNEE, AND DESCRIPTION OF A NEW INSTRUMENT FOR THEIR CURE.

By John Erichsen, Esq., Professor of Surgery at University College and Surgeon to the Hospital.

[The different kinds of contraction of the knee-joint have been previously discussed, together with their causes and treatment. The present paper will be devoted to partial dislocation of the tibia backwards, and its appropriate treatment.]

Contraction of the knee-joint, so far as the deformity is concerned, may be of two kinds—1st, it may consist of simple flexion of the leg or the thigh, at a greater or less angle, and with more or less mobility, according to the degree of anchylosis—2nd, in addition to this, there may be horizontal displacement of the bones, the head of the tibia being thrown backwards, the femur and patella remaining *in situ*, but apparently projecting more than is natural.

In examining a case of contraction of the knee-joint, the patient should be placed on his face, with the thigh extended. The leg on the affected side will then be raised more or less perpendicularly, and the amount of contraction may be judged of by the angle that it forms with the thigh. The degree of mobility also may readily be ascertained. In this way a more correct idea of the amount of contraction can be obtained than by examining the patient whilst lying on the back, when, in consequence of the thigh being flexed on the abdomen, the extent of the angular deformity cannot be so well determined.

When the contraction or anchylosis is of the slighter or simpler kind, the knee being merely bent and fixed at an angle, without any displacement of the osseous surfaces from one another, forcible extension under chloroform, with or without previous section of the hamstring tendons, will usually readily bring the limb into a straight position; but if the contraction be accompanied by horizontal displacement, the head of the tibia being thrown backwards, the limb, though tolerably straight, will continue deformed and weakened. It is to this condition of partial dislocation of the knee-joint that I wish to direct special attention.

The ordinary form of extension instrument commonly used in cases of contracted knee, and consisting of two iron plates separated by means of an extending screw, is probably more faulty in its mechanical

construction than any other kind of apparatus used in orthopædic surgery. This arises from an attempt to act upon the knee-joint as if it were a *fixed* centre, instead of one easily displaced by the least horizontal change of position occurring between the extremities of the bones composing it.

When the ligaments, by the aid of which the normal condition of a joint is maintained, have become softened and relaxed,—in the first instance by the diseased action that has been going on in the joint, and afterwards by the unequal strain to which they are subjected by the contraction,—they readily yield to any force favouring the displacement of the bones in a direction opposite to that of their strongest attachments. Thus in cases of ordinary contracted knee, the weight of the body added to the force exercised by the flexors of the leg, is sufficient to increase the amount of deformity, and, by separating the osseous surfaces of the joint, predispose it to displacement in its horizontal plane.

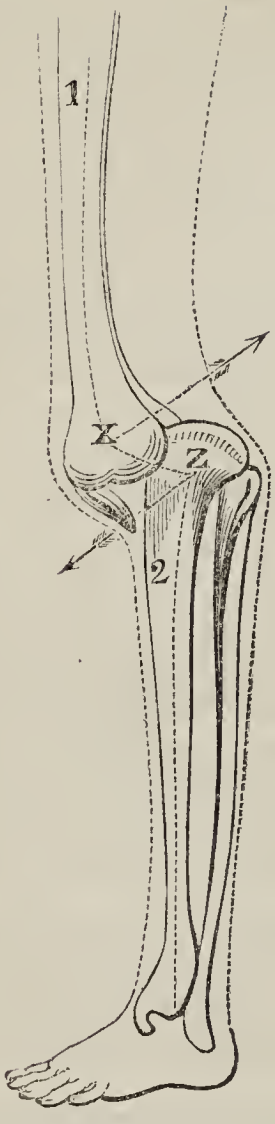
If muscular power, acting through the medium of such levers as are offered by the form of the tibia and femur, were alone sufficient to produce horizontal displacement of the bones, then an apparatus applied to the limb in such a manner as to antagonize their contractile action and to extend the extremities of each lever, would be amply sufficient to straighten the limb and secure natural action to the joint; but the ligaments themselves undergo a change in the direction of their *passive* force, which, upon the application of mechanical pressure to any part of the levers formed by the tibia and femur, becomes an active power in creating axial displacement.

The disturbance being in the inverse proportion to the distance at which the power is applied, it necessarily follows that any instrument, taking its resistive surface along the posterior border of the tibia and femur, must act most powerfully in *producing backward displacement* of the head of the tibia.

It must also be borne in mind that although, theoretically, the extremity of each lever—the femur and the tibia—is supposed to separate during the process of mechanically restoring a contracted knee to ts straight condition, practically the tibia alone undergoes change of position, the femur becoming, from its attachment to the pelvis, a fixed point for the instrument to act against. The head of the tibia has therefore a tendency to pass backwards each time an attempt is made to lessen the angular condition of the limb. This alone would prove the unmechanical principle upon which the older forms of knee-instruments are based, and at once explains the advantages derivable from any apparatus acting in such a manner as to replace the head of the tibia, at the same time that it is extending the angle of the leg.

The instrument, of which the following sketch (fig. 3) is a good representation, was designed and constructed by that excellent surgical mechanician, Mr. Bigg, to whom my best thanks are due for the way

Fig. 1.



in which he carried out my ideas, and for the many valuable suggestions with which he has favoured me on this as on many other occasions when I have required his assistance in the adaptation of mechanical contrivances to orthopædic cases. By it the important points alluded to are secured; and not only does it become an invaluable agent in extending the knee, but likewise offers remarkable facilities for replacing the head of the tibia should it have become luxated posteriorly, either as the result of disease or by the employment of ordinary extension.

To render its mechanism intelligible, the first diagram (fig. 1) represents the limb of a patient whose tibia has become displaced backwards, the angular contraction having been remedied. In the centre of the end of the femur and the head of the tibia, two letters (X and Z) are placed to designate the axis of each bony head, beneath and above which the displaced joint has formed its abnormal axis. The dotted lines represent the leverage formed by the cylindrical surface of the tibia and femur. The arrows are placed in such a direction as the bones would take in resuming their normal position.

It will readily be seen that any instrument capable of acting in the mechanical directions shown by the arrows, would accomplish not only the restoration of the joint, but extend, if contracted, the extremities of both femur and tibia.

The third figure shows the application of the instrument by which this can be effected.

An additional advantage that this instrument possesses over any other with which I am acquainted, is the application of spring power, by means of which flexion of the knee becomes an element towards its restoration.

Instead of arresting muscular action, and thus giving rise to atrophy of the limb, movement is conducive to the perfect action of the apparatus, so that the patient experiences but little inconvenience from its use, all the ordinary positions assumed by the knee in walking, sitting, or standing, being preserved.

A young gentleman, at present under my care, who has worn this apparatus for several weeks, is enabled to use the limb without the slightest difficulty for all ordinary purposes. In order that this might

be accomplished with as little inconvenience as possible, Mr. Bigg has contrived to make the instrument so light that it offers no obstacle to the patient's movements.

By this form of apparatus, then, three important points are secured, viz., replacement of the head of the tibia; extension of the angle of the leg; and free muscular action during the period of treatment.

Fig. 2.

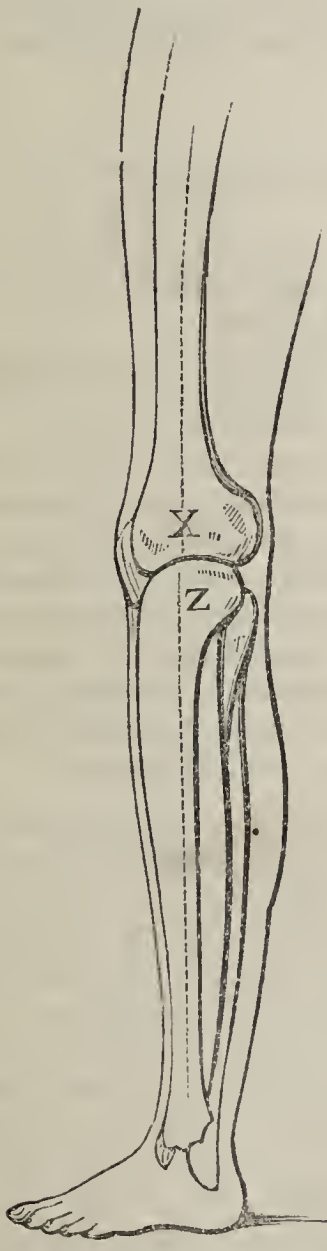


Fig. 3.

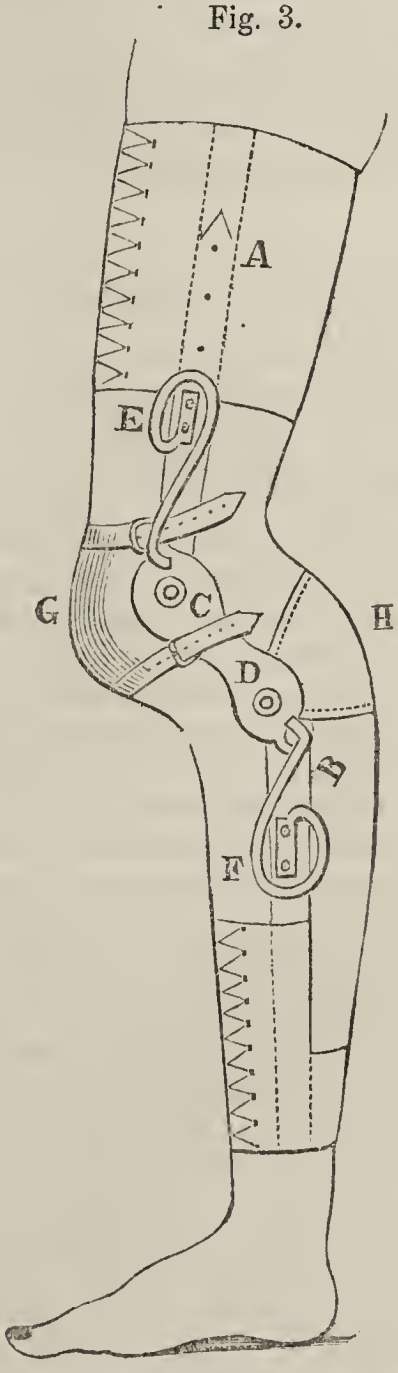


Fig. 2 represents the bones placed in their normal position, with the axis of the knee-joint restored, and each centre in its relative position.

Fig. 3. A and B are three levers, composed of metal, corresponding in their direction to the perpendicular position of the femur and tibia.

C and D are two axes, placed exactly coincident with the centres of the articular ends of the bones.

E and F are two powerful springs whose action takes place in opposing directions, similar to the arrow-indicators in fig. 1. Thus F presses the lever B in an anterior direction, bearing the end of the tibia forward, whilst E presses the lever A in a posterior direction, bearing the end of the femur backward. As C and D are found acting above and below the actual axis of the knee-joint, they mutually influence the point formed by the apposition of the heads of the tibia and femur; and as it has already been explained that the femur really offers a fixed resistance, and the tibia moves beneath it, the head of the latter bone is turned anteriorly in a semicircular direction consequent on the upper centre (C) being a fixed point, and the lower centre (D) rotating around it.

G is an elastic knee-cap.

H, a padded plate.

When the ligaments are tense, there is a chance of pressing the anterior surface of the tibia against the posterior surface of the femur. This is readily obviated by having the shaft (A) made to elongate, when the centre (C) being a little lowered, pushes the lever (B) downwards, carying the tibia with it, and thus separating the osseous surfaces of the joint.—*Lancet, May* 3, 1856, *p.* 477.

ORGANS OF CIRCULATION.

68.—ON TRAUMATIC EXTRAVASATIONS OF BLOOD WITHIN THE ARACHNOID.

By Prescott Hewett, Esq., Professor of Surgery to the Royal College of Surgeons of England.

[There are no certain signs by which we may know that blood has been poured into the cavity of this serous membrane; when slight it may produce no symptoms whatever, and even when in larger quantities, there may be no decided symptoms, owing to its being very much diffused; but, supposing you have the symptoms of compression, what are you to do? Would you be justified in going on a voyage of discovery, and opening the dura-mater in search of the effusion. This is a very serious question, and one on which there is a great diversity of opinions, even among our best surgeons.]

"Are you warranted to trephine to let out the blood from between the meninges?" Such is the question asked by Abernethy, a question which every surgeon of the present day would, I think, answer in the negative. But let us look at the question as it is put by Sir B. Brodie. "Suppose a case, in which a considerable portion of bone has already been removed, in which the dura-mater is seen exposed, of a blue colour, lifted up by a collection of blood beneath it, and bulging, as it were, into the aperture which has been made in the cranium. Are we justified in puncturing the dura-mater, for the purpose of allowing the extravasation to escape?" Under such circumstances as these, no surgeon would, I think, hesitate; but at once, lay open the dura-mater. This, there is no doubt, is the course which ought to be pursued, and there is ample evidence to prove that, however perilous such an operation may be, it has repeatedly been attended with the most signal success. Whenever, on the other hand, the dura-mater, after the removal of the bone, is found to be quite

healthy, every prudent surgeon, having nothing to guide him, will abstain from proceeding further.

Some of the cases which I have already brought before your notice, prove that patients may recover, even when large quantities of blood have been poured into the cavity of the arachnoid, and that too, without a single symptom to reveal the extensive mischief which still lies within the skull. This complete recovery is, however, rare; for large extravasations of blood in this serous membrane generally lead to the formation of encysted collections which give rise to some permanent affection of the brain.

For the following interesting case I am indebted to Dr. Richard Quain:—

A farmer, aged 58, about three years before his death, in driving home from market, was, being rather the worse for liquor, accidentally turned over in his cart. When picked up, shortly afterwards, he was in a state of insensibility, with a large scalp wound over the right temple. He gradually recovered his senses, so as to be able to answer such questions as were put to him by a surgeon, who arrived about half an hour after the accident. The wound being dressed, the patient proceeded home, a distance of five miles. He was subsequently confined to his bed for a week, after which he began to resume his ordinary avocations; but he was never the man he had been. He complained of a general pain in the head, and more especially at its lower part, as well as at the back of the neck. During the following year, he became more irritable in temper and desponding in spirits. He felt unable to follow his employment as was his wont, and, for hours together, he frequently sat with his hand on the side of his head, and his elbow resting on his knee, sometimes exclaiming that he was "good for nothing, and no use here." His memory became impaired, but in other respects the intellectual faculties were unaltered. Thus matters went on for about a twelvemonth, when one day, while holding a lamb, which was struggling violently, he was suddenly seized with a kind of fit. He fell forwards, as if drunk, became insensible, and continued so for a quarter of an hour. During this time there were no convulsions; but when he came to again he felt a numbness on the left side, and the skin appeared dark coloured for several days afterwards. In about a month, he had another fit of a like character, and from this period he became subject to such seizures, on any unusual exertion. He was always conscious of the approach of these attacks, and used to say that he was going to have one of his fits. He remained much in the same state until the day of his death, which took place suddenly from rupture of the left ventricle of the heart, caused by fatty degeneration of that organ. On opening the dura-mater, on the right side, a large cyst fell out of the cavity of the arachnoid. The cyst, which was perfectly loose, was lying lengthways, covering the greater part of the upper surface of the cerebral hemisphere, where there was a large depression, or bed, into which the cyst fitted. There

was neither roughness nor any signs whatsoever of any connexion ever having existed between the arachnoid and the cyst. The membranes of the brain, and the brain itself, were quite healthy. The cyst, kidney-shaped, but flatter, measured in length seven inches and a half, and in width, one inch and a-half in its broadest part. Perfectly smooth throughout its whole surface, the cyst was of a dark-fawn colour, with rusty coloured patches here and there. Around the margin of the cyst was a thin membrane, forming a broad, but perfectly smooth fringe. The cyst itself, when opened, was found to contain an ounce and a-half of grumous-looking fluid, of a chocolate colour, evidently the remains of extravasated blood. After settling for a few hours, the more solid part of the fluid sank, leaving a blood-tinged serum at the upper part. Under the microscope, the sediment, in which were several small fibrinous clots, was made up of a mass of blood globules, mixed with granular cells, probably the white corpuscles of the blood, and a quantity of broken-down fibrin, with some well-formed crystals of hæmatine. The clots were composed of fibrin, more or less granular, and softened, and entangling blood globules and hæmatine crystals. The walls of the cysts were very firm, tough, and rather thicker than the dura-mater generally. The internal surface, of a reddish hue, as if dyed by the coloured contents, was perfectly smooth and polished, except at a few points, to which some rusty coloured clots were adherent. Microscopically, the structure of the cyst was composed of fibres resembling those of fibrous tissue, but destitute of the cell fibres, which indicate a growing texture. There was no distinct lining membrane, but the internal layer of fibres was rather easily detached from the rest of the structure, giving somewhat the character of a separable membrane. There were no epithelial cells on its surface; but entangled on its substance were blood globules and hæmatine crystals.

The examination of this cyst, made by Dr. Richard Quain and myself, left no doubt on our minds as to the origin of this loose bag in the cavity of the arachnoid. It was a blood cyst, and nothing else.

But other cerebral affections have been known to follow a traumatic effusion of blood within the arachnoid. Insanity, for instance, of which the following case affords a most striking illustration :—

A young gentleman, at the age of 8 years, when at Winchester school, was struck by a cricket bat or ball, which caused severe concussion of the brain. This was followed by immediate symptoms of insanity, from which he, however, recovered for a time; but he was, soon afterwards, brought to London, as he was again labouring under an aberration of mind, and then placed under Mr. Fisher's care. From the time of the accident up to that of his death, a period of fifteen years, he had occasional fits of insanity, lasting two, three, four, or five months, with considerable lucid intervals. The

last two years and a-half of his life were spent in MM. Stilwells' establishment, at Hillingdon. Tall, athletic, and capable of undergoing great bodily fatigue, this patient, to a common observer, appeared merely weak in intellect and loquacious in manner; but he still had occasional fits of insanity. His last illness was characterised by great pain in the head and great drowsiness.

At the after-death examination, a large pouch, containing 10 ounces of grumous blood mixed with a clot, and some red blood, was found in the cavity of the arachnoid, to the parietal layer of which it was firmly adherent. This enormous encysted collection of blood covered the whole of the upper surface of the right hemisphere, which was deeper in colour, and rather less in size than the left. The visceral arachnoid, the pia-mater, and the brain itself, were all perfectly healthy in structure. The bones of the cranium were much thinner than natural; at no part were they more than a quarter of an inch thick, and in places they consisted merely of the two tables. The right parietal, towards its anterior-inferior angle, presented an evident bulging, where the diploë had been entirely absorbed, by the pressure from within. The right half of the frontal and of the occipital bones, as well as the squamous portion of the right temporal, had been subject to a similar action. The whole brain having been pushed over to the left side, had exerted on the left parietal bone a considerable degree of pressure, causing absorption of the diploë, but without any bulging. The left half of the frontal and of the occipital bones showed no signs of undue pressure. The left portion of the lesser wings of Ingrassias, and the corresponding part of the anterior clinoid process, were reduced to the thickness of a sheet of writing paper, almost to a cutting edge. When measured internally, the calvaria presented, in favour of the right side, an addition of half an inch.

Having, in March, 1846, been asked by Mr. Fisher to examine the dura-mater and corresponding pouch above described, about the true nature of which there appeared to have been some doubt, I can fully corroborate the accurate description which was subsequently given of these parts by Mr. Hancock.

In this case we are able, fortunately, to trace the whole history of the disease, which during life, was considered to be hereditary, the father of this patient having, curiously enough, been insane, from an injury of the head, caused by a fall from a horse, two years before the birth of his son.

Foville, also, in speaking of these encysted collections of blood in the insane, expressly states that, in one of his cases,—that of an old soldier, the disease had been caused by a heavy blow on the head. And Blandin describes a similar collection, which he found on an insane person at Bicêtre, the history of which was distinctly traced to a sabre-cut, which the patient, an old soldier, had received on the right side of the head, at the battle of Waterloo. Traces of the blow

were found both in the instruments and in the bones, to which this encysted collection of blood corresponded.

Here are three cases of insanity in connexion with encysted collections of blood, the extravasations of which we can distinctly trace to injuries. With accurate histories might we not thus bring back to accidents several cases of a similar nature ?

Let us now proceed to the consideration of the extravasations of blood in the pia-mater. Concerning these, I have but little to say. Extravasations of blood in the pia-mater are less common than those within the arachnoid, at least, comparing a large number of these cases together, I find blood much less frequently in the former than in the latter. Almost always connected with more or less extensive laceration of the brain, these extravasations readily spread from the seat of the injury to distant parts. In the arachnoid, an extravasation of blood is seldom met with in the occipital fossæ, even in cases where it is plentiful in the cerebral region. In the pia-mater, blood under such circumstances not unfrequently covers the whole cerebellum, and extends along the spinal marrow, and that, too, without any injury of these organs. Rapidly infiltrating itself into the meshes of the pia-mater, I have never seen the blood forming encysted collections such as those which are found within the arachnoid, neither am I aware that any cases of this kind have ever been observed.

We have no symptoms by which we can recognise an extravasation of blood in the pia-mater. It appears, however, that both John Hunter and Sir Benjamin Brodie thought that these widespread extravasations are apt to produce more urgent symptoms than those collections of blood in one mass, which give rise to a less general pressure ; but further experience has not confirmed this opinion.

Neither have we here the advantage which, now and then, may be met with in the effusions of blood within the arachnoid; for the constant infiltration of the blood in the pia-mater precludes all idea of its being let out, even if the dura-mater were laid open. All we can do, in such cases, is to treat them generally, according to the symptoms which may exist.

Lastly, we must now pass on to the extravasations of blood into the brain. In speaking of these extravasations, I wish, for the present, to confine myself to the collections of blood which may, in consequence of an injury, be poured out, either into the structure of the brain, or into its ventricles. The smaller or minute extravasations will find their appropriate place in contusions or laceration of the cerebral substance.

Injuries of the head seldom give rise to large extravasations of blood in the structure of the brain. Cases, it is true, occur now and then in which large collections of blood are met with in the brain after an

accident,—but is the effusion in such cases always dependent upon the injury? I think not.

In dealing with the cases in which collections of blood are found in the substance of the brain after an accident, great caution is necessary, in order to avoid, if possible, mixing up cases of apoplexy with those of traumatic effusions. The surgeon must ever bear in mind that an accident co-existing with an extravasation of blood in the brain does not necessarily imply cause and effect. The previous condition of the patient's brain, or the outpouring of blood may, in fact, have been the cause instead of the consequence of the accident. With a clear history of the accident, and especially of the previous state of the patient, there will, however, in the generality of cases, be little or no difficulty in deciding upon the nature of the case.

A man aged 50, was admitted into St. George's Hospital in 1849. with a small scalp wound at the upper part of the forehead, and slight ecchymosis of both eyelids. He had fallen from a pair of steps, but could give no account as to how the accident had happened. He was quite sensible, however, and stated that, for several days past, he had been confused in his head. With the exception of a slight wandering occasionally, this patient appeared to be going on well, when he was suddenly seized with well-marked symptoms of apoplexy, and died four hours after the attack. On dissection, a large quantity of blood was found extravasated in the meshes of the pia-mater, forming a species of cap, covering the whole of the brain. All the ventricles of the brain were filled with clots of blood, which had proceeded from the right corpus striatum, the structure of which was softened and extensively broken up. The bones of the skull presented no traces of injury.

In such a case as this, the true nature of the affection was obvious; but, supposing the extravasation to have taken place at the time of the accident—and what was more likely?—would not this case have been looked upon as one of traumatic effusion? In this instance, there was an interval between the accident and the attack of apoplexy; but, in many cases, we find ourselves deprived of any such guidance.

A middle-aged man, having fallen from a ladder about the distance of 18 feet, was admitted into St. George's Hospital in 1839, in a state of perfect unconsciousness, and bleeding from the nose. The left side of the face was paralyzed, but strongly-marked convulsions existed in all the limbs. The breathing was stertorous, the pupils irregular and sluggish, and the pulse very quick and sharp. He was a stout, strongly-built man, with a large head, and short thick neck. From the account given by his fellow-labourers, it appeared that he had fallen off the ladder without slipping, that no part of the ladder had given way, and that the steps were very broad, so that a person could stand on them without any danger. There were no appearances of external injury about the head. Shortly after being bled, this patient began to show some signs of returning consciousness; but, towards the

evening, he became restless and violent. The left side of the head now presented an extensive bruise which effectually closed the eyelids. His wife, who came to see him in the evening, stated that he had never been subject to epileptic fits; but that, two years previously, he had suffered from determination of blood to the head. Having been actively treated, this man so far recovered as to be able to answer questions, and appeared to be going on well, when, on the third day after his admission into the hospital, and without any apparent cause, he was found lying in a perfectly comatose state, from which he never rallied. On examining the body, the coverings of the skull and its bones presented a natural appearance. No traces of injury were detected about the membranes, or any part of the surface of the brain; but two large extravasations of blood were found in the deeper parts. One, on the right side, was connected with the corpus striatum, and the other, on the left side, occupied both the corpus striatum and the thalamus nervi optici. This last extravasation appeared to have taken place more recently than the other one.

Doubtless this case was one of apoplexy, which itself was the cause of the accident, and yet it might be taken as a type of many a so-called traumatic effusion into the brain. I might bring before your notice several other cases of a similar nature, notes of which I have by me; but they would, one and all, only tend to prove how necessary it is for the surgeon ever to be on his guard, where there exists the least doubt as to the nature of the case.

Collections of blood in the brain, or in its ventricles, the result of an accident, may run through the numerous and well-known changes of a simple apoplectic effusion; changes which, in some instances, precisely resemble those already noticed in extravasation into the arachnoid. Such changes seldom, however, take place in traumatic extravasations, which are generally rapidly fatal, being, as they are, for the most part, associated with other severe lesions of the cerebral substance.—*Med. Times and Gaz., Dec.* 22, 1855, *p.* 615.

69.—*Aneurism of the Arteria Innominata treated by Compression.* By F. C. Skey, Esq., F.R.S.—[The treatment of aneurism by compression, as resommended by the Dublin surgeons, so as to block up the sac by fibrinous deposits, has been so successful that it is now generally adopted.]

We have seen several cases of popliteal aneurism treated through the past year in this manner, so that it now comes to be one of the recognised resources of the surgeon. We have watched also with some interest a very formidable case of aneurism of the innominata, we do not say cured by Mr. Skey, but certainly improved in a most marked manner by a new form of pressure, or pad adapted to the top of the thorax, where the aneurism, the size of a large orange, is situated.

The case is that of a man, W. D——, aged thirty-four, who has been some months in hospital. He states that five months ago he suffered a hurt, and "burst a vein." as he thought, in his chest; at least, he traces some hurt of this description to a parallel event, as Mr. Skey conceives—viz., the appearance of the aneurism externally. The treatment has been chiefly of a nourishing kind, with opiates occasionally, and steady pressure kept up over the tumour, which felt to us once or twice as if on the point of bursting. The effect of the pressure, which is still kept up steadily, seems to be, to thicken the coats of the aneurismal sac; the case, in every point of view, as remarked by Mr. Skey, being quite satisfactory as regards the good effect of the long-continued pressure.—*Lancet, Jan.* 5, 1856, *p.* 13.

70.—TREATMENT OF VARICOSE VEINS.

By Frederic C. Skey, Esq., F.R.S., Surgeon to St. Bartholomew's Hospital.

[As a general rule, this disease is confined to the saphena major of the lower extremities, being commonly limited to the vessel below the knee. It is produced by a want of power in the circulation; and as the heart claims so large a share of the propelling power of the blood, we may infer that this organ is in the main the seat of the evil.]

Various have been the modes, and no less the degree of success, attending the treatment of this disagreeable disease. Some twenty-five years ago, varicose veins were largely experimented on in the various metropolitan hospitals of that day. The veins were divided, some directly, some subcutaneously; some were tied in one or more places, and some were laid open longitudinally with the lancet. The result of these experiments, performed, as I recollect, by surgeons of experience and judgment, was, however, by no means satisfactory, and death resulted on more than one or two occasions as the immediate consequence of the treatment. For a dozen years or more I have employed the Vienna paste as an escharotic, with a view to obliterate the saphena veins. I do not assert that this agent ought to supersede all other agents for this purpose; on the contrary I think it exceedingly possible that some other may be yet discovered possessing greater merit; but all I desire to assert on behalf of the Vienna paste is, that for a number of years it has carried my intentions into effect, without danger or evil of any kind, and that I have never failed, in a list of some forty or fifty cases, to accomplish the object of its application—viz., the entire obliteration of the morbid structure beneath. The Vienna paste is a compound of quick-lime and potassa fusa, in the proportion of about three of the lime to two of the potash. The two powders should be finely powdered and kept separate in stoppered bottles; and when required for use, they should be combined in a paste by the addition of spirits of wine. A hole is cut in the centre of

three or four thicknesses of *freshly-made* adhesive plaster, the aperture in which corresponds with the most prominent part of the vein. With regard to the number of these eschars, much will depend on the extent of the disease. If the vein be very tortuous and large, as many as eight or ten eschars may be required. I made on one occasion twelve in one leg and ten in the opposite leg of the same patient. With regard to size, I think they can hardly be made too small. When I first adopted this treatment, I thought the larger the destruction of surface the more efficient the treatment; but it is not so. The evil of large eschars is great, inasmuch as they produce ulcers of unnecessary magnitude, which are difficult to heal, and protract recovery often very considerably; whereas the destruction of the skin and tissues beneath to an extent even within the breadth of the vein itself is sufficient to the entire and immediate obliteration of the vessel. A circle of the fourth or third of an inch will, I believe, suffice for this purpose, even in the case of the largest vein. The plaster should be applied with some care, and made to adhere with exactness to the surface underneath. In determining the situation, I usually select the points in the track of the vein which are largest and most prominent; and on these, the plaster, prepared as above described, may be applied. It is desirable not to make the paste too wet, or the plaster will not retain it within the prescribed circle, and the result will be an eschar at least half as large again as that proposed. As to the period of its application, the destruction of parts will be complete in from twenty minutes to half an hour, towards the expiration of which, and indeed often much earlier, all pain has ceased. The plasters may then be removed, and the paste carefully washed off with a soft sponge. It is not very important what kind of application is now made to the surface, but I usually order a well-made poultice of linseed meal, to which a quantity of lard is added, and this is renewed night and morning until the eschars separate.

From the time of the destruction of the skin, the vein will be obliterated, and in a day or two subsequently, its presence will hardly be detected by the pressure of the finger. All that now remains is to force on the vital powers to the separation of the eschars and the healing of the circular ulcers, which will still expand by the elasticity of the skin around, as the sloughs separate from the living texture. Having described the condition of system inseparable from that in which the veins assume this varicose state, I need not tell you that you must draw largely on such agents, both medicinal and dietetic, as will promote healthy vital actions, such as bark, opium, iron, wine, brandy, and animal food. If your patient's bowels become constipated, remove their contents by a mild laxative; but as a general, almost a universal rule, leave the "secretions" to take care of themselves. Indeed, I will venture to say that I deem it of so much importance to retain in the alimentary canal all the nourishment that is attainable from the food, that I would suggest, should you adopt the

opinion that man cannot enjoy health without the frequent employment of purgative medicine, that you had better leave varicose veins and their treatment to your neighbour. As a general rule, you may rely upon it that the actions of a man's bowels are far more likely to be diurnal and regular on a full diet than on a limited one.

In the month of July last I admitted a man into Abernethy ward, with extensive varicose veins of the left leg and thigh. Seven eschars were made on the vessels below the knee, and in a month the wounds had healed. Previous to the operation, he had suffered severe pain in the limb, and often to so great a degree as to compel his absence from work. I then proposed to him the radical cure of the disease above the knee, where the contortion of the vein was large, and its diameter was enormously increased, but he refused to undergo further detention in the hospital, saying that he had work before him of a more than usually profitable kind. At the expiration of two months he returned to the hospital. The cure of the veins treated by the Vienna paste was complete both as to sensation and to aspect, but he complained of severe suffering from the veins of the thigh. These were very prominent, and somewhat tender to the touch. I made eschars of about the fourth of an inch in diameter, on the four most prominent parts of the disease. On the following morning the whole surface was reddened and consolidated by lymph. The man suffered no further pain. The eschars came away on about the tenth day, and on the nineteenth the man left the hospital cured.

I have at the present time under my care an officer of cavalry, who has suffered for the last year or two from considerable pain in the saphena vein of the right leg and thigh. The locality was such as to prevent the requisite pressure of the knee against the saddle, and he consequently rode with difficulty. I destroyed the vein along a track of about fifteen inches, by the formation of seven eschars, four of which are placed below, and three above the knee. A month has elapsed since the operation. The sloughs have all separated, and the ulcers have closed to about half their largest size. The diseased vein is entirely obliterated.—*Lancet, March* 29, 1856, *p.* 334.

ALIMENTARY CANAL.

71.—TREATMENT OF HARE-LIP.

By Richard G. H. Butcher, Esq., Surgeon to Mercer's Hospital, Dublin.

[At what period of life ought the operation to be performed? Many contend that it is better to wait until the individual is conscious of the deformity, the patient can then lend his assistance, abstinence from food can be better borne, and the parts are better able to hold the needles. Sir Astley Cooper fixes the time at two years when den-

tition is completed. Liston says, that the period from two to four years is certainly the time to be preferred. Syme also waits until the child is two years old. Velpeau prefers waiting until the tenth or fifteenth year, if the first six months have passed over. Chelius fixes the time at eight months. South at two years. Dupuytren at three months.]

I shall consider these objections, and see what advantages originate from early operation. As to enlisting the acquiescence of a child to suffer pain, from the time that it is able to appreciate danger to the age of eight or ten, this may be looked on as romantic and visionary. How can a child at this age realize the hopes of benefit, from the very moment that it is hurt by an operating instrument? According to my experience, it becomes the most unmanageable of all patients. It has been urged that the flesh of the young infant is not so susceptible of healing as at a later age. I cannot agree in this; neither do I believe it to be correct, for I have seen wounds inflicted almost immediately after birth cicatrize with amazing rapidity; further, we have a striking example of the reparative powers of the fœtus in utero, as called into existence under certain circumstances. I allude to that pathological lesion, in which portions of the limbs of the fœtus are removed by a process which has been, with propriety, denominated spontaneous amputation. Chaussier mentions having examined two cases in which separation of a part of the forearm had taken place before birth; and in a third case he found the separated portion of the arm and hand lying apart, *and the stump of the limb healed.* Other cases, similar in result to this, are published; a most interesting one by Dr. T. West, in which the child was still-born, with but one leg; the other limb exhibiting positive proof of having been spontaneously amputated some time before, the stump being *partially healed and nicely rounded*, about an inch and a half below the knee.

From what I have seen, I believe that the healing power, instead of being more feeble, is absolutely more vigorous in the infant; and as to the flesh not being sufficiently strong and resisting to give a hold to the needles, a contradiction is afforded by the numerous operations which have been most successfully executed at the tenderest age, even shortly after birth. Stress has been laid upon the abstinence from food, which can be borne in the more advanced period of childhood; but let us examine whether such an assumption holds good: the question is of some moment in a practical way. After operation the child is not inclined to take food for some hours; Nature throws a protective influence over the part, which is peculiarly remarkable where the operation has been delayed, and the little patient allowed to advance in years. I have seen a very unfavourable restlessness created absolutely by the dread of taking nourishment, for which the demand was urgent and pressing: but it is not thus with

the infant operated on soon after birth: it sleeps for a short time, and upon awaking it readily takes the breast, and while in the very act is again overcome with sleep, and hushed to repose in the warm and loving embrace of its mother. As regards the epochs of dentition and the likelihood of convulsions during such periods, there is no more danger, in my opinion, to be apprehended from the operation for hare-lip than after any other which it may be necessary to subject a child to. As to convulsions, I have never seen them arise in a single instance after the operation for hare-lip, either in my own practice or that of others.

In the second case of complicated hare-lip which I have detailed, it is mentioned that the child had slight convulsions on the morning and evening before admission to hospital, yet after gentle mercurial aperients there was no recurrence of them, and though operated on a few mornings after, they were not ushered into existence. From this instance and others which I have witnessed, I am led to the conclusion, that in many of the cases in which they are reported to have occurred after operation, a due attention was not paid to the condition of the bowels and general health. Mr. Fergusson writes thus: "An erroneous impression (as I suppose) prevails that children are remarkably subject to convulsions while undergoing operations; and this is often urged as a reason for not interfering with hare-lip in early life. Doubtless, convulsions have occurred in some of these cases; but similar effects have been produced in the adult, and by less formidable means too. Sir A. Cooper has referred to several examples of this kind; but I imagine they must be rare indeed. I once asked the late Dr. Abercrombie of Edinburgh, the results of his experience on this point, and he could not bring a single instance to his recollection where convulsions could be fairly attributed to an operation. In my own limited opportunities, I have never seen a case of the kind, although I have performed much more severe operations on newly-born infants than that for hare-lip could possibly be." In reference to the fatal effects apprehended from loss of blood and the fainting consequent upon it at the tender age of infancy, I shall thus remark,—that there should be no risk from either, if the assistant be vigilant, and the operating surgeon dextrous and rapid in his movements. Mr. Lawrence thus expresses himself:—"It has sometimes been said that children are liable to convulsions at this time (speaking of the operation for hare-lip) and that a considerable loss of blood may act seriously on them, so that they may die from the mere effect of the operation; this has not occurred in any case that has come within my observation." The age for performing the operation in cases of congenital hare-lip has formed the subject of a communication to the Royal Academy of Medicine, by Professor Dubois, who advocates an early operation, and has brought forward several cases in support of the proceeding; the patients were subjected to the operation at the following ages:—three on the second

day after birth—one, a few days after—one, a fifth—and one on the fifteenth; four of the infants were allowed to take the breast; two were brought up by the hand: all the cases were successful. M. Dubois states, that if the child be sickly, and the hare-lip complicated with divisions of the bones, the operation ought to deferred. but that when the child is strong and healthy, and if the fissure only affects the lip, it ought to be performed early. I shall not conceal Roux's opinion on this statement: he said it would be unfortunate if, on the authority of Professor Dubois' name, it should be concluded, that the operation ought to be performed early in every case: the facts recorded by him are relative to simple uncomplicated hare-lip; and in this respect M. Roux coincided in a great measure with him, although he is always fearful of dangerous results consecutive to operations in very young children, the more so, as he has witnessed several which terminated fatally. Mütter writes:—"Much dread of convulsions, sloughings, fevers, &c., exists in the minds of some when they refer to operations of this kind upon very young children; but I have, over and over again, succeeded without the occurrence of any untoward symptoms, in infants of three, four, and five days old."

I shall next endeavour to point out the reasons directly in favour of the superiority of infancy over a more matured age for its being made the period of this operation. It may be fairly urged, that when early put to rights the parts recover themselves afterwards better then when they are permitted to remain and grow up misshapen. And there is one circumstance which never should be lost sight of or overlooked in coming to a determination regarding time, namely, that the fissure of the palate frequently closes of itself after the lip has been operated on during infancy; and bad habits of speaking, such as nasal or guttural utterance, which, if once established, become irremediable, are averted. By the early operation the whole features are prevented holding for ever impressed upon them the characteristics of their misshapen originality; and who will not admit that by removing such disfiguration from the face before the child has become aware of its presence, it is spared the feelings of humiliation which the consciousness of such deformity necessarily imparts, and which invariably gives a tone to the after character of the individual. By the early operation the feelings of parents are greatly gratified that the deformity of their child is removed before it is gone abroad into the world. We have conflicting opinions, then, by great men nearly balanced on the question. I have no hesitation myself in giving preference to the early operation. I do not think it fraught with as much danger to the infant as to the child at a later period; and most certainly, if performed by the same hand, I consider, with a far better chance of removing the deformity; the infant is so quiet, so unconscious of danger, so easily restrained, that the hard parts, if irregular, can easily be forced back into position; the

incisions can be accomplished with the greatest accuracy and rapidity. Again, when the parts are placed in apposition, and retained so, there is no disturbing forces, for the muscles of the face have not been yet brought into action, or exercised by expression; and finally, I do not think the all-powerful law of the coalescence of opposite sides has become extinct, annihilated by birth, and therefore should be made available towards furthering reparation.

I have examples where I performed the operation at various ages, from twelve days after birth to the completion of the thirteenth year. I have watched over many with great anxiety, and am fully convinced that the safest period to the child for operation is from the termination of the first week to the end of the third month. No doubt it may be undertaken earlier, and has been with success in many instances; but I prefer waiting a few days after birth, in order, as it were, to allow the functions of the body to be healthily in action. During dentition some caution is requisite; but even during this process, periods free from irritation and fever will arise which may be taken advantage of for operation. As the child advances in life the deformity is greatly increased, and the operative measures, I believe, become far more formidable; besides, the parts within the mouth, when the palate is widely fissured, become so disproportionately formed, that intonation and voice become spoiled for ever after. By delay the tongue, may become too large to permit of operation with safety.

In reference to the selection of instruments for the operation of hare-lip, the comparative merits of bistoury and scissors require consideration. Many of the older surgeons were indifferent in their choice, —Franco, Heister, and Ledran recommend either indiscriminately. However, in France the greatest number adopted the scissors, until Louis, with an exaggerated importance, proclaimed their inconveniences, and the advantages of the scalpel. At length, Desault, though shaken in his views by the authority of this celebrated man, by accurate investigation and diligent research, fixed his practice on the point, and used the scissors. Ever since Dubois' writings, the French school are in favour of the scissors; while the most distinguished operating surgeons of the English school prefer the knife. Mr. Liston, in advocating the superiority of the bistoury, has gone beyond the limits which experience will warrant or a strict adhesion to facts support. He writes—"Paring with scissors is to be reprobated as an effectual means of preventing immediate union," while, by the employment of the knife, "bruising is avoided, and union takes place rapidly." I cannot conceive why Mr. Liston, so accurate generally in all his statements, should have penned such sentences as these; surely he must have seen instances in which the scissors-wound has healed as rapidly as that made with the sharpest knife? When the edges of the wound so made have refused union, it must be assigned to some other cause; for instance, even in Mr. Liston's own hands,

though the knife be the instrument used, no union may take place in the cut edges. Mr. Fergusson, in the 'Medical Times and Gazette,' mentions such an instance. He says, relative to a little girl upon whom he was about to operate:—"The case was more especially interesting, as an operation had been put in force on two previous occasions, and the fissure in the lip, which was a simple one, had not united on either occasion; the late Mr. Liston was one of the gentlemen who operated, and this is a sufficient guarantee that everything was done that could be for curing the deformity; but from some cause, which cannot be explained, union did not take place, and the affection still remained." Experience proves that the part cut by scissors never shows any contusion, and the neatness of the wound, whether made with knife or scissors, will greatly depend upon the hand that uses them. Malgaigne even goes further, and believes that pressure is, in certain cases, the best means of obtaining *clean* incisions—whence the necessity of extending and stretching the skin under the bistoury—and writes, "as this pressure is by no means so strong as with the scissors, we ought, in all cases where the parts may be divided at one stroke, to prefer them—the contusion is a chimerical idea." As to the amount of pain, Bell's experiment, where he cut off one of the borders of the fissure with the knife, and the other with a scissors, proves that the patient complained more of the first than the second incision.

In the numerous cases which I have given, I used the scissors for paring the lip; in all and in every instance the wounds have beautifully united throughout, sufficient evidence that the division made by the scissors is susceptible of union by *first intention*. I have used both the bistoury and the scissors, and freely confess I prefer the latter. When applied to the lip, after a sufficient degree of traction is exerted upon it, by drawing the tenaculum downwards and towards the mesial line, I am convinced a more even and accurate section can be made than with the knife. It is no argument, because in the hands of such men as Liston and Fergusson beautiful operations are accomplished with the knife, that their method must be the best; for in skilful hands equal success often crowns both means. Fixing the lip with the tenaculum, is not so formidable a measure as that adopted by Dupuytren and Velpeau, of drawing a silk thread through it, while from the resisting nature of the instrument greater precision is certainly obtained. Either mode is superior to that adopted by Liston and others, of holding the angle of the lip between the finger and thumb; for I have seen, when the fingers became wet with blood, the part slip away and the section made uneven, so as to require a second application of the knife, ay, and of the scissors too, to rectify the mistake.

Too much stress cannot be laid upon the form of needle which the surgeon chooses when he purposes employing the twisted suture. I

have no doubt the coarse silver pins and "hare-lip needles," as they are called, with sliding points, and points capable of being removed on and off, have over and over again defeated the objects of the surgeon. From their clumsiness and bulk, when thrust into the parts, irritation is kept up, and frequently the inflammation passes beyond the bounds necessary even for adhesion, and non-union of the wound is the result. Again, a portion may be united and another not; but even granted that the track of the wound heals favourably, openings, with loss of substance, are created from their pressure, which are never entirely filled up after. The needle which I have been in the habit of using is sold as the common darning needle; it may be obtained of various lengths and thickness. It is a long, slender needle, ground into a triangular shape from its point upwards, for half to three-quarters of an inch. Owing to its great length it is easily introduced, and very manageable after transfixion. It will rest in the wound without falling out, owing to its length, until other parts of the operation are proceeded with; and from the delicacy of its form, and the sharpness of its point and edges, it traverses the lip with the least possible violence; it is so thin, round, and polished on its surface, it produces scarcely any irritation. After the silk is thrown around it, the point and eye are easily clipped off; and lastly, when the time for its removal comes, it is easily withdrawn without jerking or shaking the parts. In the application of the twisted suture, I would insist upon the following particulars being attended to:—First, the needle must be introduced a considerable distance from the edge of the lip, and not, as in accordance with the rule usually laid down, "that the point of entrance must be at a distance from the edge, equal to the thickness of the lip." By piercing far away from the cut edge, the needle is permitted to pass *close* to the mucous membrane without dipping, and not, as generally advocated, two-thirds through the substance of the lip. Second, when the silken cord (which should be coarse) is about to be cast around the needle, in the figure of eight form, before any restraint is made by it, the cheeks should be shoved forwards by an assistant standing behind the child, and the cut surfaces absolutely in contact; the parts thus held up together are gently restrained by the turnings of the cord from retracting or receding into their original position, but there is no uneven constriction exerted on them, as occurs when they are forced together by the tension of the ligature as generally applied. As the result of the former mode, but little force is required to keep the parts in situ, therefore the needles are not dragged forwards, or made to produce an injurious pressure on the transfixed parts, terminating in ulceration; thus, through the entire depth of the wound adaptation of surfaces is insured with the slightest amount of force, every portion of it being exerted in the right way. By attending to these particulars I have accomplished union with the twisted suture in the most perfect way in all the foregoing cases, and in many more not herein recorded. In addition to the

twisted suture, it will be observed in the history of the foregoing cases, I generally put a point of the interrupted suture on the inside of the red border of the lip to prevent the edges gaping: the ligature acts a second part, it prevents the child's tongue separating the edges. To more fully carry out this latter object I have passed the needle through the entire thickness of the lip, as recommended by Malgaigne; No exact rule can be laid down for regulating the time when the needles should be withdrawn; a good deal depends upon the tension by which they are retained. In some instances they must be left in longer than in others; they must be carefully watched, and withdrawn on the first appearance of ulceration. I have given an example of the expediency of removing one, inclined to cut its way out, and replacing it by another near the locality. In the various cases, the details of which I have given, the needles were removed after the lapse of the following number of hours from the time of the operation :—

Patient,	2 months old.	—Needle removed	56	hours after operation.
„	10 days old.	„	70	„
„	19 months old.	„	72	„
„	13 years old.	„	78	„
„	15 months old.	„	72	„
„	6 weeks old.	„	67	„
„	12 months old.	„	58	„
„	6 years old.	Died from fright.		

In addition to the twisted suture, there are other mechanical appliances which may be employed with great benefit as auxiliaries in holding the edges of the wound together, the simplest of which consists in wide straps of adhesive plaster. The assistance to be derived from a force drawing the cheeks forward was not lost upon Desault, who invented a special bandage for the purpose, and which goes by his name. He has figured it in his work on Surgery, applied to the patient. Upon the cheeks are placed two cushions in the space circumscribed behind by the masseter; before, by the commissure; above, by the malar eminence; below, by the sides of the lower jaw. "An assistant fixes them by pressing them against the cheek and pushing them forwards." These pads are retained in their respective places by a bandage, which it is not necessary to describe here, and for the application of which I beg to refer to the original volume.

The great objection to this bandage rests in the fact, that the needles are pressed upon—therefore it should never be used; and on the same principle, when mentioning the application of adhesive straps as a useful accessory in keeping the cheeks forward, I have laid great stress in slitting them in a way that they cannot press upon or interfere with the needles. Mr. Fergusson makes mention of, and has figured in his Practical Surgery, a very useful contrivance, brought under his notice by an ingenious mechanic, Mr. Hainsby, who designed it to apply to the face of his own child, who had been already operated

on twice unsuccessfully, once by the perfect hand of Mr. Liston. I have before alluded to this case when drawing a parallel between the advantages of the bistoury and scissors. The instrument consists of a spring which encircles the head from behind, and the two ends, terminating each with a pad, rest on the cheeks, which are thereby supported in the position given to them. All dragging or strain upon the sutures is thus prevented, and pressure upon the lip, whether from the bones behind or otherwise, is guarded against. Mr. Fergusson operated upon this case when failure had occurred already on two occasions, and he registers his success in these words :—" I am of opinion that the cure in this instance was owing in some measure to the ingenuity of the patient's father, and I would recommend this case to your consideration ; for there are instances of hare-lip in which a surgeon will not like to operate, in consequence of the great amount of tension which will be exerted upon the edges of the wound, which will, almost with certainty, burst open again.

However, an instrument very similar to this was recommended more than a century ago. The direction in Verduc's book is to place the spring upon the head, with the ends resting upon the cheeks ; but the instrument was objected to by several eminent surgeons, when it fell into disrepute. All the objections appear to have been merely theoretical. Le Charrière considered that by means of a circle of steel, which surrounded the head, and by graduated compresses, which he placed upon the cheeks, success would be unavoidable. For the purpose of replacing his bandage it has been modified since in various ways by Quesnay, Henkel, Koennig, Strickelberger, and Eckhold. Enaux and Valentine devised those which bear their name. The supporting spring of Le Charrière approximates most closely of all to Hainsby's apparatus. Mr. Quain, in commenting on an interesting case of complicated hare-lip, which he has published in the Medical Times and Gazette for July, 1852, states—" Heretofore I myself, before I had seen Verduc's proposition, applied to more than one surgeon's instrument-maker to construct a spring, with a view to another difficult case ; but they did not succeeed in making a useful instrument."

There are two very excellent cases of hare-lip, with protrusion of the central part of the alveolar process of the upper jaw, detailed in the Edinburgh Medical and Surgical Journal for July, 1830, by Mr. Dewar, and in which he used a steel spring, very analogous to that recommended by Mr. Fergusson. " It occurred to me," says Mr. Dewar, " that as a very slight degree of pressure on the cheek, on each side, near to the corner of the mouth, relaxes the upper lip, a narrow piece of steel, having a spring, might be so adapted as effectually to answer my purpose. I had, accordingly, a spring made, nearly resembling a pair of sugar-tongs, and so padded as to press on the cheek near the mouth. It was kept in its place by a narrow tape, tied over the chin, and by three tapes which were fastened on behind,

and one on each side, to a piece of leather placed on the crown of the head. This simple contrivance answered every purpose admirably : I could relax the lip by it to any degree I wished, and it could be worn without the smallest inconvenience. The strain was thus taken off the pins, and the process of healing advanced in the most favourable manner." There can be no doubt, however, that " Hainsby's apparatus," is far superior to all others, for in its adjustment no pressure whatever is exerted over the cicatrix. The great superiority of this instrument is borne ample testimony to in an embarrassing case of cancer of the lower lip, in which I used it so far back as the year 1852, which has been published in the records of the Surgical Society.

In addition to the modes of incising the soft parts which I have described as practically applied in the foregoing cases, there are others proposed by eminent surgeons—the object of all being to try and do away with the notch which so frequently remains at the red border of the lip after operation. I have instanced a case where I made the semilunar incisions, and certainly a very beautiful lip was the result; there was no deficient point below. The curved scissors were used to effect this object. The instrument is a solid one, with knife-blades closely fitted. It answers the purpose admirably : and when this line of incision is desired, I can confidently recommend it as most suitable for the purpose.

In other hands this modification of the operation has not been very successful; I have seen after the method the centre of the most concave part not accept of union, and the space filled up with granulations, ultimately skinned over, creating a broad, marked cicatrix. M. Malgaigne adopts the following method : instead of refreshing the edges from below upwards, he incises them from above downwards, leaving the detached slip adhering by a small pedicle below ; he then unites the wound, and, bringing the two little strips over the inferior angle of each edge of the lip, he cuts and trims them to fill up the depression.

M. Coste, chief surgeon to the Hotel Dieu of Marseilles, has proposed the following modification in the operation for hare-lip, so as to obviate the ugly notch which often remains below. He states that the plan proposed by Malgaigne is only applicable to double hare-lip, and that in the simple deformity an unsightly prominence is left. The author in simple hare-lip (which lies generally on the left side) has succeeded in avoiding the notch altogether by cutting a horizontal flap in the red part of the lip on one side, and a kind of half mortise on the other. In paring the margins of the fissure he takes off more substance than is generally done; the flap and mortise are well secured by twisted suture, and by one of the diminutive spring forceps called " serrefines ;" one transverse needle is placed a little higher up, and no application whatsoever made, so that the progress may be more accurately watched. M. Coste gives the instance where he thus succeeded upon a little boy two years of age in the most satisfactory way.

It matters but little what method is followed, if the rounded margins of the lip be not freely cut away. If they are so, and the cautions observed in passing the lower needle which I have dwelt upon, the same happy results will be obtained by the method I have practically illustrated. In addition to what I have already written about the management of the central piece of the lip in the double form, I have only to add, that when it is large enough to come down on a line with the red margins of the lateral portions, and even covered with a red border, I do not save it to make a part of the lip below. I have seen it, when preserved, fail to accept the union on one or the other side, and I have also seen a double notch occasioned by its preservation. This central piece should be accurately fixed by one or two needles thrust through the outer flaps, and traversing it from side to side; it is a practice far better than the proceeding recommended by Gensoul of applying separate points of twisted suture to each branch of the V. Dieffenbach's Karlsbad insect needles may be equally efficacious as the fine cambric ones used by me. I ought to notice here that in latter years Sir A. Cooper gave the preference to the common interrupted suture, on account of the difficulty sometimes experienced in withdrawing the pins and the liability of the new adhesions to be broken on the occasion; whereas the threads of a common suture may be cut and taken out with the greatest facility; but, again, I repeat that any proceeding of the kind is inferior in every respect to the twisted suture as employed by me; at the same time I freely admit the candour of Sir A. Cooper in abandoning a coarse, clumsy method which was not suitable, and therefore, could not possibly be successful. The twisted suture, as I have described it, so perfectly accomplishes its end, that there is little hope or fear that M. Mayor's new kind of suture will replace it; it is called by the mattress-makers the quilt stitch ("le point piqne"). He pierces the left edge of the wound near its free end with a needle, which he introduces at a right angle from within outwards, drawing with it a double thread, at the end of which a ball of cotton is attached; by its pressure the edges of the wound are united, and by tying together the ends of the threads upon a ball of wool put between them, the union is supported, as he would lead the reader to infer, probably as well as in the seam suture.

A good deal of diversity of opinion prevails as to the best mode of dealing with the projecting maxilla and the detached central osseous piece in cases of complicated hare-lip. Some of the very highest authorities recommend cutting off the projecting piece. Sir A. Cooper says, "when the jaw itself projects the common preliminary step to the operation consists in cutting away the bony prominence." Chelius likewise inculcates this precept in the following passage:—If there be a bony growth in the cleft, it must, after the skin covering it has been raised, be removed with the nippers." And again "If the incisive teeth project, they must be extracted if of the first set; but if of the second, it must be attempted to give them their proper direction by

continued pressure, and if this be not possible, they also must be extracted." On no account, in my opinion, should the projecting maxilla be cut away. In the youngest infants I have bent it back, rupturing its elastic structure, and, in more advanced life, after Gensoul's method, breaking it with a forceps and thrusting it back, and after either experienced but little difficulty in steadying the piece in its new berth. There is no doubt that in very young children, if pressure be steadily kept upon the part for a lengthened time, it will be got back. Desault effected this object by bandage, and in 'Cooper's Surgical Dictionary' is a case where the author was successful "by a spring truss worn daily for several hours." But these methods become tedious and irksome both to surgeon and patient, and are not always effective. Other surgeons slice away the most convex part, or the outer laminæ of the projecting maxilla, the only object attained by this proceeding being the support afforded to the lip, but the teeth are for ever absent. So anxious am I to preserve the teeth in these cases, even when irregular, that I twist them with a forceps into a more seemly and better position before I break back the bone. When a central osseous piece projects, containing the incisor teeth, every effort should be made to save it. In one instance I adopted a novel method, and succeeded, which I trust may be practised by others, where the parts are similarly circumstanced. This portion, when so very prominent, must be got back or taken away to allow the soft parts to be united; therefore many surgeons, Liston, Fergusson, and others, take it away. If the attempt be made to push it back, the stalk breaks, and, in many instances, having no support, it falls down towards the mouth, below the alveolar range. Even in this unpromising state the following measures may be tried. The edges of the central piece, almost always covered with a structure similar to the gum, being pared, as well as the anterior margins of the maxillæ, a strong needle should be thrust across (or a hole drilled for it) from one maxilla to the other, traversing a central piece; the ends should be clipped off as close as possible, and a few turns of silk thread thrown around to retain it in its berth: a bit of lint should then be put round each end to save the cheek from being irritated; after a few days the needle might be withdrawn and the remaining steps of the operation proceeded with; or I would have no hesitation in putting across the three portions of bone a metallic thread, as recommended by Flaubert, of Rouen, after resection of the ends of the humerus in non-consolidated fracture of bone, and at once completing the operation.

As to the position in which the child should be placed for operation, I prefer the semi-erect posture. In this position the infant can be held, firmly rolled up in a sheet, in the arms of an assistant, and its head steadied in the most perfect way by a second. If the child be more advanced in years it should be secured in a chair by a few additional turns of a sheet. By this position the blood is prevented streaming backwards to the throat, giving rise to violent coughing and

struggles for air; and the parts being more under the command of the surgeon, he can accomplish the necessary steps with the greatest possible accuracy, precision, and rapidity.

I have never availed myself of the anæsthetic agency of chloroform in this operation for hare-lip, for the following reasons:—I consider it impossible to measure the exact amount, so as to dull the sensibility of an infant, without risking the annihilation of the protecting influence presiding over the glottis; thus leaving it to chance whether blood may not trickle down, and suffocation ensue. In the child more advanced in age, if the chloroform be not given in sufficient quantity to produce its full effect, an increased violence and restlessness is invariably consequent upon its use. Once for all, I repeat, the risk is too great for its adoption.

I have endeavoured to apply cold, after Arnott's method, in these cases, so as to freeze the parts and destroy their sensibility before cutting—a practice which I have found most valuable in other operations; but I had a deeper object in view—that expressed and dwelt upon in the paper referred to, namely, to bring into operation "*the healthy action aroused in the part after its use.*" But in these instances I have been compelled to desist, from the great pain occasioned by the process of congelation, after a few minutes; indeed the child's cries and struggles to get free were as vehement and forcible as during the most protracted operation. Therefore I have with some reluctance relinquished it as a means that cannot be employed.—*Dub. Quarterly Journal, Feb.* 1856, *p.* 1.

72.—ON THE TREATMENT OF CONGENITAL DEFICIENCY OF THE PALATE.

By George Pollock, Esq., Assistant Surgeon to St. George's Hospital. (Read before the Royal Medical and Chirurgical Society.

[The object of this paper was not to bring forward any new operation so much as to draw attention to the fact, that few exceptions exist in which the fissures of the hard palate cannot be effectually and permanently relieved by operation.]

In the relation of the cases, and the sequel of the paper, the following points were insisted upon:—The line of the first incision of the edges of the cleft ran along the line of union between the mucous membrane of the mouth and that of the nose. It is made with a knife, consisting of a flat piece of steel, bent at a right angle, about a quarter of an inch from the extremity, the cutting edge of which is about an eighth of an inch broad in the centre, and rounded off narrower to each end; a much broader knife, of the same character, is used to detach the soft parts from the bone, an operation requiring great care, to avoid lacerating and bruising them. Knives bent at various angles are required for various parts of the mouth, and one

was recommended, the blade of which should be acted on by a screw; they should be strong and firm, and as broad as can be conveniently used. The edges, when detached, should never be brought together by sutures, unless they fall and meet together without traction. The author advocated the introduction of a suture through each of the curtains of the newly-detached palate, as preferable to the use of forceps, when manipulating them. The ends of the sutures are brought out of the mouth, and tied in a knot, so that there may be no fear of their being withdrawn, and thus the flaps can be raised or moved about without fear of bruising or lacerating the edges, one of the most frequent causes of failure of union. When the flaps or curtains do not meet of their own weight in the mesial line, a curved knife is introduced through the palate, near the last molar tooth on each side, and pushed upwards and inwards between the bone and soft parts, until its point is seen in the fissure, when the blade is moved slightly backwards and forwards. Lateral incisions may also be required. The author strongly insists on the propriety of not attempting too much at once, and for these reasons: the separation of a large surface greatly interferes with its nutrition; both anterior and posterior palatine arteries would be divided at the same time, and sloughing rendered thereby probable; the length of the operation, and consequent fatigue and pain to the patient. The author prefers to operate upon the hard palate first, because the anterior palatine artery being usually divided in that procedure, flaps obtain ample nourishment from the posterior palatine vessels; and again, firm union of the new-formed palate is usually followed by a sensible diminution in the breadth of the fissure of the soft palate. Again, it is the more tedious and painful operation of the two. In operating on the soft palate, the author advocates a novel mode of dividing the levator palati muscle. The flap being put on the stretch by the traction of the suture above-mentioned, a sharp-pointed, double-edged knife is run through the side of the palate, on the inner side of the hamilar process, which can be readily felt through the soft parts. The point being kept in a direction upwards and inwards is soon seen to have passed through the soft palate, and projecting into the gap of the fissure above the line of the levator. The handle is next raised, and a sweeping cut made along the posterior surface of the soft palate. The knife, being withdrawn, leaves but a small opening in the mucous membrane, and the levator is found to be freely divided. If this proceeding do not sufficiently liberate the curtain, the incision may be carried down to the free margin of the soft palate. Sutures should never exert the slightest traction or pressure. Their removal, of course, will depend on the circumstances of the case; but usually the first may be removed on the third or fourth day. After the operation, fluid or pulpy food should be given liberally; it is very important to insist on this, as the patient will otherwise be deterred by the pain of swallowing. Whiteness and coating of the tongue after operation are not to be considered indications for the administration of

physic; nor are various conditions of the tongue and fauces previous to operation, and which are due to the absence of the hard palate, to be regarded as indications of defective general health; the latter, however, should always be perfect at the time of operation. The operator upon the hard palate is not to be discouraged by failure in gaining union at first, for parts which were thin and scanty are often rendered thicker and more vascular by separation from their attachments. When attempts are made to close an aperture in the palate, caused either by malformation or disease, after paring the edges and separating the soft tissues from their attachments, lateral incisions are frequently necessary; and great general support may be given to the sutures used below the wound, by passing a broad suture through the lateral incisions, and thus including both flaps within its embrace. And this is not its only effect; it prevents the healing of the lateral incisions until the opening has had time to unite. Its use is preferable to that of sponge or of lint introduced into the wounds. As chloroform is not applicable to these operations, a degree of self-command and endurance is required, which cannot be expected in an individual under the age of 17 or 18, at which period also the development of the parts affected may be presumed to be nearly completed. Mr. Pollock suggests, in conclusion, that although in all cases in which operative procedure has been attended with success a great improvement has invariably been noticed in the speech and articulation, yet much remains to be done by education. Efforts must be made to change the acquired habit of pronunciation for a new method of articulation, which may be best and easiest effected by the patient repeating words after a teacher, or reading aloud, subject to correction. Difficulties in this respect will, however, often be found to depend upon the fissure in the alveolar ridge, or irregularities of the teeth.—*Lancet, Feb.* 2, 1856, *p.* 127.

73.—DEEP ULCERATED CLEFTS IN THE TONGUE.

By Dr. Christopher Fleming, Surgeon to the Richmond Hospital, Dublin.

[A butcher's assistant, aged 33, who had previously suffered from syphilis, was admitted into hospital with fissures on the dorsum of the tongue, which gave him great pain on taking food.]

On examining the tongue, its dorsum was furrowed with two deep sinuous ulcerations, almost parallel to each other, the extent of which towards the base can only be seen by considerable traction forward of the apex, the voluntary protrusion of the organ being comparatively limited. Towards the base these sulci all but joined each other. Their depth was not less than three-fourths of an inch, and their length somewhat more than an inch. Their surfaces were covered with an orange-coloured tenacious matter, their edges were sharp,

abrupt, and in some portions undermined. The body of the tongue was full, and its under surface of a dark congested appearance. The mouth was filled with saliva, and there was no fœtor worth noticing.

This affection of the tongue was solitary—no other symptom could be discovered which was not identified with the general temperament of the man. He was not much emaciated. He had no articular or other pains—no eruption—no marks of cicatrices of former cutaneous diseases of syphilitic taint. What preparation of mercury, or what amount of that specific he might have taken for the venereal attack noted, he could not state, but it was evident, from the mutilated condition of the penis, that the original character of the disease was more or less phagedenic.

At the expiration of a month after the admission of this man into hospital, he left with the ulcers of the tongue perfectly healed, and with obvious improvement in his general health. The local treatment adopted was the application of nitrate of copper to the ulcerated surfaces, its repetition being directed according to the condition of the ulcers and the substitution of weak lotions of it, or the " oxymel cupri subacetatis," as the curative stages advanced. The general treatment, in the earlier stages, consisted in the exhibition of chlorate of potash in gradually increased doses, from five to ten or fifteen grains, in combination with bark and sarsaparilla. In the after stages iodide of potash and iodide of iron were given in conjunction with the same medicine, and occasionally with cicuta.

I have repeatedly been this man since his discharge from hospital. He continues at his former occupation, is free from any return of his complaint, and the tongue, though contracted and pursed up at its base, appears to answer all useful purposes, and to give him no annoyance whatever.

The practical lesson we learn from this case cannot be exaggerated; its details dispense with the necessity of any comment; but the use of the chlorate of potash deserves trial in cases of a similar nature; in this it was most beneficial. Respecting the use of this medicine, I may remark, that I know of none more likely to give satisfactory relief in the treatment of those equivocal ulcerations which occur at the back of the pharynx or in its vicinity, identified with which I viewed the ulcer in Scully's case. Iodine and its preparation with potash and iron may be of use, but the essential improvement first manifests itself whilst the chlorate of potash is being exhibited. Many most aggravated cases have passed through hospital, where its effects were most gratifying. Of course, I allude not to ulceration of the tongue—such cases are very rare, indeed. The following extract from the passage I have alluded to, respecting the application of nitrate of copper, may, perhaps, not be inapposite :—

" I have tried many local applications, and amongst others, the acid nitrate of mercury, but I have found none equal to the nitrate of copper. It is most invaluable as an application to this class of ulcer ;

and I may remark, that it will be found equally so in many of those small excavated ulcers of a semi-phagedenic character, which occur on the genital organs both of the male and female. It is a very deliquescent salt, and can be applied only in the liquid state. The surface of the ulcer should be well dried before it is applied, and afterwards covered with oil; and it should be borne in mind, as regards the tongue, that the superficial appearance of the ulcerated surface is often most deceptive, as the disease burrows very deeply. The best mode of fixing the tongue, for the purpose of applying the caustic, is by means of the fingers and thumb, a portion of lint, linen, or a towel being interposed, so that it cannot slip; and the best instrument for the application is a small piece of cedar, as prepared for paint brushes, the ends of which may be covered with lint or French wadding, one end being dipped in the nitrate of copper, the other in the oil, whereby no delay or confusion can ensue."—*Dub. Hosp. Gazette, Dec.* 15, 1855, *p.* 346.

74.—ON STRANGULATED HERNIA.

[The following cases afford many practical points of interest, but particularly in reference to the propriety of opening the sac.]

1. An oldish woman was operated on by Mr. Cock, at Guy's, for femoral hernia; strangulated sixty hours. The intestine was returned without opening the sac. The woman seemed to do badly after the operation; bowels not opened except by enema; when, in about eight days, an artificial anus established itself; the flow of fæcal matter continued for some weeks; it then gradually ceased. The hernia being at the right side, the parts about the ileo-cæcal valve were, in all probability, engaged. In discussing with Mr. Cock the propriety of operating in this case of hernia, and relieving the stricture *without* opening the sac, this experienced surgeon seems decidedly in favour of this plan. We gain nothing, he thinks, by opening the sac; we may, on the contrary, lose a great deal by doing so without necessity for it. This should be our rule. But, in practice, we may find reasons sometimes to deviate from it. In this case, it will be observed, though the sac was not opened, it did not prevent the establishment of a fistulous communication with the gut.

2, 3. In these two cases, occurring at St. George's Hospital, the sac was opened. One was under the care of Mr. Pollock: a woman, in whom a hernia (femoral) was strangulated for thirty-six hours; the second was under the care of Mr. Tatum, the hernia strangulated thirteen hours. Both cases recovered. In neither, perhaps, was there a necessity for opening the sac, if the surgeon could have ascertained the state of the parts *after* the operation as well as *before* it. Acting on the safe side, however, the sac was opened. Were the cases not so

favourable, it might also be urged, the symptoms might be aggravated by opening the sac.

4. A very marked and suggestive case, at the London Hospital, operated on by Mr. Ward; strangulation had existed about twenty hours. Chloroform and the warm bath in no way aiding the taxis, Mr. Ward determined to divide the stricture, cutting freely both the ligamentous fibres of Gimbernat's ligament and Poupart's ligament. The stricture, however, existing in the neck of the sac, these incisions were not sufficient, and he decided to open the sac itself. The gut was much congested, but safely returned. Opium was freely given after the operation, with apparently good results, as on the third and fourth days the woman was decidedly better. On the fifth day, however, the result of the strangulation became too evident, as the bowel gave way. We have seen this woman several times since; she has progressed quite satisfactorily to a perfect cure.

5, 6. We may here record two other cases of Mr. Cock's, as they bear out his views of the dangers of opening the sac, the danger in a greater measure, however, being due, perhaps, to the neglect of such cases before they are sent, in an almost hopeless condition, to hospital. One of these cases was that of a woman, about sixty years of age, (the age of his former case.) The hernia was accompanied by peritonitis, or that fatal tenderness all over the abdomen, on which Mr. Stanley lays such emphasis, as the worst symptom of all in hernia. The sac was obliged to be opened, as in Mr. Ward's case. The bowel, however, never acted afterwards; it was adherent with lymph. The woman died, a few days after the operation, from the effects of the neglect in not sending her to hospital earlier, and of unskilful manipulation out of doors. A man, about fifty years of age, was operated on, in July, at Guy's, by Mr. Cock. The case was one of strangulated inguinal hernia the symptoms so very severe, for more than forty-eight hours, that feculent vomiting had set in. Mr. Cock divided the stricture without opening the sac, according to his rule; but not feeling satisfied in his own mind that all the hernia had been reduced, though the gut had apparently gone up—a feeling often experienced, it must be confessed, by those surgeons who have much practice in hernia cases—he decided to open the sac, and leave nothing to chance. The intestine, as suspected, had been returned, but a large fold of diseased omentum still remained; and what was to be done with this now became an anxious and difficult question. Part of the omentum was healthy, but another part was very much injured. The latter Mr. Cock proceeded to remove; the former was returned into the abdomen. After the operation, diarrhœa set in, and though opium was given, the man sank in twenty-four hours. At the post-mortem examination, the knuckle of intestine, still discoloured, was found, almost unchanged. Below the seat of stricture, the bowel was empty and contracted; above this point, very much dilated and distended.—*Lancet, Oct.* 13, 1855, *p.* 338.

75.—CASE OF STRANGULATED HERNIA.

By Samuel Solly, Esq., F.R.S., Surgeon to St. Thomas's Hospital.

[William A——, aged 70, had double inguinal hernia for twenty-five years, that on the left side being by far the largest, but never having given him any trouble; the one on the right side, though much smaller, had often given him much pain to reduce it. This case serves to illustrate the fact, that a small hernia is generally more dangerous than a larger one. Three days before admission it came down again, but thinking it would return as usual he did not apply for relief, until he was driven to it by the pain, vomiting, &c. On examination it was found to be very hard, tense, tender, and about the size of a hen's egg. As the taxis and warm bath did not succeed in reducing it, it was determined to operate immediately. We may here remark, that persons who have long been the subjects of hernia, generally manipulate their own case better than even the best surgeon, and if the patient cannot return it, it is very seldom that the doctor can. Therefore, in most cases, it is worse than useless, nay, dangerous, to try the taxis at all.]

With regard to the operation, I may first call your attention to the way in which I made my first incision on this occasion; not that I pretend to any originality in it, but you will find it a good plan to follow. You might observe that I nipped up a fold of skin over the neck of the tumour; one extremity of the fold I held in my right hand, the other was held by Mr. Fernie, our house-surgeon; and then, running a sharp-pointed bistoury through it, I had at once an incision about an inch and a half long, through the skin and superficial fascia. This incision is thus made more rapidly and with less pain than one with a scalpel cutting down over the surface of the tumour; and in hands unaccustomed to operate there is less danger of opening the sac unintentionally, or even the gut, as I have seen occur before now. You should next divide the other coverings of the sac, using the knife horizontally, having nipped up the tissues in succession with the forceps until you reach the peritoneum. Do not divide this—that is, do not open the sac, if you can avoid it, but divide the stricture external to it, as you saw in my operation on Monday last. The danger of the operation is much less if you do not expose the intestine. I have no hesitation in saying that, as a general rule, it is much better to avoid opening the sac. You might observe that as soon as I had exposed the sac I felt for the stricture with my little finger, and upon that divided the stricture. Always use your finger for this purpose in preference to a director. You will find that the probe-pointed knife is better for this purpose than the ordinary hernia knife; you are less liable to injure the sac. When you first attempt to perform this operation you will not find it so easy as it looks to divide the stricture external to the sac, and I cannot tell

you exactly why. There is a knack in it, which, however, you will soon acquire with a little practice. After having divided the stricture, you gently press the sac between the finger and thumb, and if the contents all *pop* back, if I may so express it, leaving the sac quite empty in your fingers, you may be satisfied with the result; but if you do not empty the sac, feeling that something remains behind which you cannot get rid of, you should then open it to discover the cause. Most probably you will find an adherent intestine or portion of omentum; or if the contents of the sac suddenly give way, and the sac feels soft and not empty, you may apprehend a gangrenous intestine, and then you must open the sac. If you are operating on an old-standing hernia, where the patient tells you he has never been able to return the whole, you may expect to be obliged to open it.

The first time that a pupil sees an operation for hernia he is sure to mistake the sac for the gut, they are so much alike. How are you to distinguish them? There are certain circumstances to attend to which will assist you, but nothing except frequent personal observation of these operations will make you confident of the distinction. Never lose an opportunity while you are here of attending them. When the sac is opened there is an escape of fluid in ninety-nine cases out of a hundred, sometimes more and sometimes less; if therefore there has been no such discharge, you may be nearly certain that you have not opened it; but this is not without an exception, for I have opened a sac which has been so tensely filled by the gut that there was no room for any fluid. The direction of the bloodvessels on the peritoneum is different from those on the gut; they meander about in an arborescent, irregular form. On the surface of the intestine they run at right angles to the canal. Then again, if it be intestine, by drawing it gently forward, you will see the mesentery, but you cannot move the sac from its position.

With regard to the treatment of the wound after you have completed the operation, bring the edges together; raise them, and with another hand to assist you, put in two or more sutures to keep them in close apposition. Over that place a piece of lint, and then the strapping, as you can thus keep the edges better in contact than with the plaster next to the skin. A figure-of-8 bandage, nicely and tightly applied, will act as a temporary truss, while the patient is confined in bed. I always order a dose of calomel, two grains, and opium, one grain, to be given immediately. Do not be anxious to get the bowels open; never mind if they do not act for the next twenty-four hours. If there are any signs of peritonitis, continue the calomel in two-grain doses, but with only half or quarter of a grain of opium. At the end of about thirty hours, if the bowels have not been evacuated, give a simple enema, and if this does not answer, then a dose of castor-oil. Of course it is very satisfactory to see the complete success of your operation by the passage of the fæces

along the lately-strictured gut, but remember that you do not secure the ultimate success which you aim at by forcing the injured intestine to act before its natural circulation is properly restored. And of this you may be certain, that if there is any local peritonitis, you are doing the most certain thing to diffuse it generally over the peritoneum, by inducing peristaltic action, and carrying the effused lymph through the cavity of the abdomen. This man has gone on without a bad symptom; he is free from pain or tenderness in the abdomen; his tongue is clean, and to this I attach the greatest importance, much more than to the pulse, as an index to any inflammatory mischief. The pulse varies very much in different individuals, and, alone, is a very deceitful guide: in this case it was soft and quiet, and though nearly forty-eight hours have elapsed since the operation, and the bowels are not opened, I feel no anxiety.—*Lancet, Nov.* 17, 1855, *p.* 459.

76.—*Operation for the Radical Cure of Hernia.*—M. DE ROUBAIX has described, in the "Presse Médicale Belge," a new operation devised by him for the radical cure for hernia.

The hernia having been reduced, and the integument being pushed into the orifice, the operator seizes that portion of the skin which lies immediately over the spermatic cord and femoral vessels, so as to form a vertical or slightly oblique fold; this fold is raised as much as possiblo, its base is transfixed with a straight bistoury, and it is cut through from behind forwards. From the extremities of this incision two others are made, of a semilunar form, with their concavities looking towards each other, and approaching each other towards the upper part of the hernial orifice, leaving a sufficient space for the nutrition of the flap. The flap is introduced into the orifice so as to form a plug.

The edges of the ring and of the skin have now to be united. To effect this, M. de Roubaix draws firmly together the edges of the incisions and the neighbouring skin; then, the left index finger or a small gorget having been introduced into the transverse aperture, the integuments and the aponeurosis are connected by means of a small trocar. He then introduces through the canula a piece of platinum wire fitted to receive a small screw at each end. If convenient, a second platinum wire may be introduced. An oval piece of gutta-percha, with a small hole in the centre, is passed on each side over the wire, so as to come in contact with the skin. The pieces of gutta-percha are then drawn together by means of the screws. In this way, a longitudinal wound is obtained, the edges of which are brought into apposition by the twisted suture, care being taken to leave the lower part free for the escape of pus.

The advantages of this procedure, according to the author, are:—

1. The hernial sac being untouched, and the lesion of continuity affecting only the skin and aponeurosis, there is no danger of peritonitis.

2. There is no danger of injury to the spermatic cord and femoral vessels.

3. The cutaneous flap, having its pedicle upwards, is not liable to be drawn downwards either by the weight of the scrotum and testis, or by the movements of the thigh.

4. The hernial orifice is narrowed and partially obliterated, and in front of it is placed a powerful obstacle which adheres to and fortifies it.

5. In front of the vessels and cord there is a firm cicatrix, which, by its connexion with the plug and the adjacent parts, forms an impassable barrier to the viscera.

M. de Roubaix has performed this operation successfully on a female aged 61, who had suffered for twelve years from a large femoral hernia, which descended as far as the patella.—*Gaz. Med. de Paris.*—*Association Med. Journal*, *Jan.* 19, 1856, *p.* 48.

77.—ON SOME POINTS IN THE SURGERY OF HERNIA.

By Nathanial Ward, Esq., Assistant Surgeon to the London Hospital.

[The following remarks are drawn principally from cases of strangulated hernia, which have occurred in the London Hospital, during the last four or five years. Many of the cases have been previously grouped and commented upon in a small pamphlet, published a short time ago. Taking these together we have 100 cases which have been operated on, and these will show fairly the results of treatment.]

Of the 100 cases alluded to, 4 were umbilical, 63 femoral, and 33 inguinal. The aggregate mortality amounted to 33. Three deaths occurred amongst the umbilical, 19 amongst the femoral, and 11 amongst the inguinal class. The peritoneal sac was opened in all the cases of umbilical hernia; of the 63 femoral it was *not* opened in 42, and and opened in 21. The average period of strangulation in the former amounted to thirty-seven hours and a fraction, and of age to 52 years: in the latter, that of strangulation to 57 hours and of age to 56 years. Amongst the forty-two cases of unopened sac, of the 32 that recovered the average age was 47; and of the 10 that died the average age was 66. Of the 21 cases of *opened* sac, 12 recovered, the average age being 54, and 9 died, the average age being 59. Of the 63 collectively, 9 occurred in the male, and 54 in the female; 43 were on the right, and 20 on the left side. Of the 34 cases of inguinal hernia, the sac was not opened in 10, and opened in 24. The average period of strangulation in the former was $28\frac{1}{2}$ hours; in 18 of the latter, 30 hours. Of the cases collectively

25 occurred on the right, 9 on the left side: all took place in the male subject.

On glancing over this analysis, we are struck in the first place with the fact of the operation without opening the sac having been performed much more frequently in cases of femoral than of inguinal hernia. The greater applicability of Petit's operation to the one class than the other appears to be attributable to the fact of the neck of a femoral sac not undergoing hypertrophy so frequently as the neck of an inguinal sac. In the latter, the pad of the truss bears directly on the narrowest portion of the sac, which is usually situated at or near the immediate neighbourhood of the outer ring, and this narrow portion receives a counter pressure from the pubis. In the former or femoral. the pad bears mainly on the body of the sac and not on the neck; we consequently find more thickening in the structure of the neck of an inguinal than of a femoral sac, a less amount of capability of yielding, and a smaller calibre. The neck of an inguinal sac offers therefore a greater impediment to the reduction of a strangulated bowel than the neck of a femoral, and necessitates the more frequent opening of the sac. I of course exclude from this remark quite recent cases of inguinal hernia, and also those cases of large, irreducible inguinal herniæ in which the pressure from within has ultimately gained the better of the resistance from without, and in which a recent additional protrusion has been followed by symptoms of strangulation; for both to the one set and to the other, the operation without opening the sac is peculiarly appropriate. I limit the remark to those case of inguinal protrusion of intermediate duration which most frequently demand surgical attention, and in which the contents have been reduced, and retained in the abdomen by a truss, which temporarily occludes or diminishes the calibre of the neck of the sac, and by the irregular and inconstant pressure it exerts, leads to the thickening of its walls. In the second place, we observe, *that in the forty-two cases of femoral hernia in which the sac was unopened*, the period during which symptoms of strangulation had lasted prior to the operation was less *by twenty hours* than the period of strangulation *in the cases in which the sac was opened*, and that the age was less by four years. I should have also mentioned in the analysis that the average day of recovery in the unopened series was the twenty-third, the average age also being less by nineteen years than in the unopened cases that died; in the opened series, the thirty-first day. In two of the former class the wound had healed on the fifth day; in one case the recovery had taken place on the sixth, eighth, ninth, tenth, and twelfth day respectively. The shortest period in which a case of unopened sac had recovered was the tenth day; and after this the twenty-first day was the next earliest period. Now, it is admitted on all hands, that the chances and rapidity of recovery after operation, both in cases in which the sac had been opened and in those in which it has not,

materially depends on the length of time the bowels has been subjected to mechanical obstruction and its consequences. Post-mortem evidence also corroborates the conclusion, that the amount of intestinal lesion, and the risks of abdominal inflammation, bear a direct proportion to the period and intensity of strangulation. Based on this conclusion, the propriety of an early operation has become prominent to the mind of every thoughtful surgeon of the present day, and his great anxiety is to relieve a strangulated rupture before its organic capabilities have been seriously interfered with, well knowing that procrastination, even for a few hours, will now and then lead to a fatal result, in consequence of gangrene of the gut, collapse, peritonitis, or other fatal complication.

For the formation consequently of an unbiassed estimate of the causes that determined the relative result after the peritoneal and extra-peritoneal operations, in this series of cases, the period of strangulation should of necessity constitute a primary feature in the calculation. Considering then the short period in which the gut had been strangulated in the series in which Petit's operation had been had recourse to, the less advanced age of the patients, and the comparatively healthy state of the bowel, it becomes a question of interest to determine, whether *in these very cases of unopened sac*, the addition of a peritoneal incision, the exposure and manipulation of the gut would have influenced injuriously, to any great extent, the ultimate event. The expression of opinion on this matter cannot be considered as decisive. It is quite clear, however, that had the sac been opened, in this series, something would have been done not required by the exigencies of the cases; and to repair that additional something, which could be looked on in no other light than as the infliction of an injury, a prolonged effort at restoration would have been required on the part of the system. The progress to recovery would in consequence, no doubt, have been retarded, without, however, the certain addition of enteritic or peritonitic symptoms, which, I think no one could deny would be more likely to ensue from prolonged mechanical obstruction to the intestinal circulation, than from an exposure of the bowel and incision of the serous membrane. My own opinion is, that the risk of leaving the bowel unrelieved *for a long period—say thirty hours*—and then *operating without opening the sac*, would be greater than relieving *the bowel at a comparatively early period of strangulation—say twenty hours—and opening the sac.* I should even not be surprised to find that if ten cases of strangulated hernia, in which the symptoms of obstruction had been of short duration, and exactly similar in every respect, were operated on without opening the sac, and ten of a like nature by opening it, all the operations being performed by the same surgeon, in the same manner, and with an equal amount of skill, that the results as to recoveries and deaths would be alike. I should think, however, that the period of recovery would be longer, and the atten-

dant casualties during and after the operation would be greater in those instances in which the sac had been opened, than in those in which it had not been opened. I would refer, therefore, the more favourable termination, as established by this analysis, in cases of unopened sac, mainly to the early period of operation, and the less advanced age of the patients, without in any way denying that the limited nature of that operation, *though not usually of vital importance*, contributed essentially to safety and the rapidity of the cure. We have direct evidence on the very point of early herniotomy, in which the sac was opened, in a very interesting *résumé* of a series of cases that have occurred at St. George's Hospital, published by Mr. Prescott Hewett in the 'Medical Times and Gazette' of Sept. 23rd, in last year.

Mr. Hewett states, that the rule at St, George's Hospital is the reverse of that adopted at the London Hospital, being, in fact, to open the sac freely. The mortality amongst 75 cases, in which this plan was adopted, amounted to only 19; the operation having been performed, as we glean from the context, as early as practicable, with every amount of attention to a previous cautious use of the taxis, and a subsequent non-purgative treatment. This result, I think, a very good proof, as far as it goes, that opening the sac, although it may retard the progress to recovery, is by no means of that serious or fatal character entertained by many of the advocates of the extra-peritoneal operation. Mr. Hewett "considers, however, that if cases of hernia were seen at a much earlier period than they commonly are at our hospitals, and if protracted efforts at reduction were more generally given up, that the rule of not opening the sac would find many more advocates than at present." In this remark I perfectly agree; and for the sake of surgery, and the relief of suffering, should be glad to see this view practically acted up to.

Independently of these 100 cases that have been operated on during the last four years and three quarters, 254 other cases of hernia have been admitted, the patients suffering more or less from symptoms of strangulation, but who have been relieved by general or local measures —the use of the warm bath, chloroform and opium, the taxis, and application of cold. The taxis has been found, with few exceptions, of eminent service, and has frequently done away with the necesity for an operation, which, prior to its application, seemed imperatively called for; and I can call to mind several cases in which it succeeded when no impulse could be detected in the body of the tense tumour. This reduction of bowel into the abdomen by manipulation requires, of course, in its use, extreme care, delicacy, and tact, and will frequently succeed in the hands of one understanding the principle of the proceeding, whereas it will fail over and over again, and do considerable mischief, even if it should succeed, when applied by one either ignorant of or indifferent to it. I think it may be serviceable to append the following description of the professional way of applying the taxis;

for to attempt to define or put in practice the frequently successful method adopted by patients themselves would be almost impossible, inasmuch as the proceeding they have recourse to appears peculiar, and at times complicated and ridiculous, and is followed by most serious consequences. My friend, Mr. Hovell, gave me an opportunity, a short time ago, of seeing an elderly woman, who had had a right femoral hernia for many years, and on being seized, as she frequently had been on former occasions, with symptoms of strangulated bowel, applied the taxis herself during the night. It was successful, as far as referred to the reduction of the gut, but so much force had been used, that when I visited the patient, she had great prostration with marked mitigation of the symptoms of strangulation. Concluding that she would probably sink during an operation, and that the bowel had been ruptured, we decided on not interfering. In a few hours, an after-death inspection confirmed the qualified diagnosis that we had made. The following is the plan to be recommended in the use of the taxis:—Draw the body of the tumour gently down with one hand, and with the thumb and two or three fingers of the other steadily compress the neck of the hernia, with the view of causing the contained fluid to pass into the intestine above the swelling. When gurgling is heard, or when, from the sensible diminution in the size and tension of the hernia, there is reason to infer that the passage of fluid has commenced, then, at the same time, keep up gentle pressure on the body of the tumour without pressing it upwards, and the possibility is that the contents of, and then the hernia itself will be reduced. If the body of the tumour is not drawn somewhat downwards and kept so, the part of the gut (and the neck around it) just below the lower orifice of protrusion will be forced up, and doubled a little on itself against the borders of the opening, and injury to the intestine and a failure in reduction be the probable consequence. If this plan be found not to succeed after one carefully-conducted trial, it will rarely be found to answer after many, and an indication is then given for the performance of an operation, as delay will but complicate the case, and further endanger the life of the patient. It may seem absurd to assert or insist on so obvious a truism, but the gloomy part of the records of surgery bears such painful testimony to the neglect of this precept, that the propriety of operating early, without persisting in the taxis, cannot be too strongly enforced and too clearly illustrated.—*Lancet, Jan.* 19, 1856, *p.* 67.

78.—CASE OF LARGE ABSCESS BETWEEN THE BLADDER AND RECTUM.

By F. C. Skey, Esq.,F.R.S., Surgeon to St. Bartholomew's Hospital,

Cases occur every now and then in which a catheter is easily introduced into what should seemingly be the bladder, may be carried as deeply as wished, and freely moved about while yet no urine can be

obtained. The cause of this state of things it is often very difficult to assign ; and, should the patient recover, or, in case of death, an autopsy not be obtained, the explanation often remains surrounded by much mystery. The following most instructive case illustrates one mode in which such an occurrence may sometimes be accounted for :—

A man, aged about 40, was admitted on Monday, October 15, suffering from retention of urine. He was stupid, and seemed very ill, complaining, among other things, of inability to use his lower extremities. Mr. Hodgson, Mr. Skey's House-Surgeon, who throughout took great interest in the case, obtained from him a positive statement that he had never, until within the last few days, suffered from any ailments referable to the urinary apparatus. His first symptom had been a rigor two days ago, after which he found himself unable to pass his water, and accordingly sent for a surgeon. The surgeon who attended, with much difficulty and after giving him considerable pain, succeeded in passing an instrument up to its hilt, and as he (the surgeon) said, into the bladder, but obtained no urine. Some bleeding occurred, and the man having got rapidly worse, sought admission into the Hospital next day.

The period which elapsed between the man's admission into St. Bartholomew's and his death was two weeks, and during this time many attempts had been made at catheterism, and with very variable success. At one time the instrument would pass easily into the bladder, encountering no obstacle whatever, and at another it would pass up to its hilt, be freely movable, and yet not a drop of urine could be obtained, although the bladder was felt to be enormously distended. On one occasion, when one of the House-Surgeons was making an attempt, the point of the instrument, which was at the time introduced deeply, seemed suddenly to slip through something, and urine at once flowed. More or less of blood usually resulted from the use of the catheter, and often considerable quantities of grumous pus: the urine itself was clear. The man, originally, much out of health, at length sank from exhaustion, and on October 30th, Mr. Hodgson made a post-mortem examination of the body.

The abdomen having been opened, and the bladder exposed, a catheter was introduced, when it was found to pass without meeting with the least impediment behind the bladder, high up, pushing before it the inverted recto-vesical pouch of the peritoneum. In this way its point, covered by the peritoneum, projected considerably above the fundus of the bladder. Having been withdrawn, and again introduced, the instrument passed as easily, and seemingly by mere chance, into the cavity of the bladder. On laying open the viscus, an opening of considerable size was seen on the floor of the prostatic urethra, just behind the veru montanum. Into this a large-sized instrument easily entered, and was then conducted into an abscess cavity, capable of holding two fists, which occupied the space between the bladder and the rectum. The abscess was collapsed, and contained only a small

quantity of thick, grumous fluid. Its walls were little more than the cellular tissue of the part, and it had the appearance of having been of quite recent formation. In the median line of the posterior aspect of the bladder, about three inches behind the internal meatus of the urethra, was an opening which admitted the catheter, and was, indeed, situated at the exact spot where the point of that instrument when occupying the false channel would, on its handle being depressed, impinge against the viscus. Thus, the catheter leaving the urethra in the prostatic tract could be made, by a second false opening, to enter the base of the bladder, and the explanation of one of the successful attempts during life alluded to was readily given. The bladder itself was somewhat thickened and congested, but not to an extreme degree. There was no peritonitis. The right kidney was a mere bag of thickened tissue, lined by a villous membrane, and containing about three ounces of a thick, brown, grumous fluid. Its ureter was in many parts as large as would have easily admitted the forefinger, its coats being thick and, in parts, almost cartilaginous. Its canal was irregular from constrictions in several places, but in all parts pervious. No communication between it and the abscess cavity could be traced. The left kidney was larger than natural, and excepting the deposit of fibrinous exudation in large patches of quite recent appearance, it was not diseased. The urethra itself, as has been stated, readily admitted a No. 10 catheter, its penile portion was not laid open, but in the bulbous and membranous tracts there was not the least trace of stricture.

One thing was plain from this examination, viz., that the man must have long suffered from diseased kidney. The condition in which the right kidney and its ureter were found, was one which could not possibly have been produced in a fortnight's illness. Respecting the cause of that condition, the most probable conjecture seemed to be, that it had been caused by a renal calculus, which had excited suppuration, and slowly ulcerated its passage down the ureter. The history obtained from the patient was so imperfect, that the absence of any statement confirmatory of this opinion could not be ranked as a material objection to it. There did not seem any reason for believing that this state of the kidney had any connexion with the immediate cause of death. In explanation of the abscess, Mr. Skey stated that he had little doubt, on looking at the history of the case, but that it had been caused by the passage of an instrument between the bladder and rectum prior to the man's admission. His first retention had probably been from spasmodic stricture; force had been used, and the catheter made to lacerate the floor of the urethra. The collection of pus caused by this accident would easily explain the subsequent retention, from its lifting up the lower part of the viscus, and thus closing the meatus internus; it would also have tended to keep the orifice of the false passage open in such a way that, on subsequent attempts, the point of a catheter could scarcely miss it.—*Med. Times and Gazette, Nov.* 10, 1855, *p.* 469.

79.—ABSCESSES IN THE PERINEUM AND NEIGHBOURHOOD OF THE ANUS.

By James Syme, Esq., Professor of Clinical Surgery in the University of Edinburgh.

[The explanation of the origin of abscesses in this situation which is usually given and received, is very erroneous, so far as the rectum is concerned. They are said to be from ulceration in the mucous membrane, allowing intestinal matters to enter the cellular texture. But such an occurrence never does take place, since ulcers in this situation are always attended with an induration of the subjacent texture, and]

It is this firmness of base that renders ulcers of the rectum recognisable by touch, which from long and large experience, I may confidently assert, is sufficient for the diagnosis of all derangements in this part of the body, while speculums are not only painful and useless, but calculated to mislead. If further evidence were required to disprove the agency of ulceration in giving rise to the abscesses in question, it would be afforded by the effect of wounds penetrating the mucous membrane, which give rise to abscesses, it is true, but totally different in their nature and character from those of the ordinary purulent collections met with in this situation. The most frequent instances of such an injury are produced in a way that would not readily occur to you, viz., the administration of enemata. Many years ago, on making my daily visit to this hospital, I was told that a patient, who had been admitted with retention, was suffering from extravasation of urine. Upon examination, I found much swelling of the nates and neighbouring part of the perineum, but no difficulty in passing a full-sized catheter, through which a large quantity of healthy urine was evacuated. Having then ascertained that an injection into the rectum had been employed as a substitute for more efficient relief, I suspected the truth, and introducing my finger into the anus, at once felt an aperture on the anterior surface of the bowel, through which the fluid injected had no doubt passed, so as to simulate the appearance of urinary extravasation. In those days, the instrument employed for throwing injections into the rectum, was the old metal syringe with a straight pipe, which, when introduced behind the patient, as it generally was, could hardly fail to encounter resistance from the opposite surface, requiring force, which was sometimes employed so strenuously as to make the fluid escape in a wrong direction into the operator's face. Impressed with the danger of such a procedure, as manifested by the case just mentioned, and others that came to my knowledge from the inquiries which it suggested, I recommended that the old injecting apparatus should be abolished, and that Read's syringe should be employed in its stead. But even from this more safe and apparently harmless mode

of administration, I have known perforation of the mucous membrane produced; and in order to put you still further upon your guard, I may mention that a most kind and attentive practitioner asked me to see a gentleman, in whose case he felt so much interested, as to administer an injection by the apparently innocuous means of a bag and pipe, or in other words, a bladder, with an ivory tube attached to it, with the effect of perforating the bowel, and distending the hip with the usual mixture of gruel, salt, and oil. Nay, more, I could tell you of this injury being inflicted by a patient himself, who was a man of great distinction in the literary world, and held some high appointments which made him an object of interest to the public as well as to his numerous friends. He consulted me for uneasiness about the anus, which I was sorry to find proceeded from a carcinomatous tumour. Knowing such a sensitive nature as the patient's could not bear the sentence of death that would have been implied by giving the disease its true name, I called it a pile. Officious people were then indefatigable in urging the trial of doctors and drugs for the cure of what seemed an affair so simple; but the patient resisted this interference, and contented himself with using the only palliative that afforded relief. This was the injection of muriate of morphia, with a little water, into the rectum. One forenoon, about two years after I had been consulted, I was sent for in great haste to see the patient. It appeared that he had got up and breakfasted as usual, but was soon afterwards found lying on the floor of his bed-room, in a state of great confusion, with the furniture in disorder. He seemed quite unconscious of external impressions, but was much excited in mind and body. Dr. Alison, who saw him with me, was equally at a loss with myself in accounting for this extraordinary state, which gradually passed into a comatose condition, and terminated fatally at the end of forty-eight hours. On dissection, immediately within the carcinomatous ring which surrounded the anus, there was a small round opening, and beyond this the cellular texture was condensed, thickened, and infiltrated with fluid. I think there can be no doubt that the patient had produced all this mischief by pressing the tube of his small india-rubber injecting bag in the wrong direction. When the fluid injected is not of such a deadly character as in the case last mentioned, it merely excites inflammation of a very violent character, attended with a corresponding degree of constitutional disturbance, the local result being very speedily a large collection of extremely fœtid fluid and air. These characters of the abscess may be supposed to depend upon the peculiar nature of the matters allowed to issue from the bowel. but are more probably connected with the sort of inflammatory action which is excited by the wound. Some months ago, I was requested by Dr. Gibson, of Dundee, to visit a gentleman there, who had, a few days before, when apparently in the enjoyment of perfect health, begun to complain of uneasiness about the rectum and perineum, with

smart fever, and latterly of such difficulty in voiding urine as to require the catheter. There was no redness or external tumour, but fulness and deep-seated fluctuation between the rectum and prostate. We therefore deemed it expedient to make a very deep incision in the middle line of the perineum, which had the effect of evacuating several ounces of extremely fœtid pus. The patient was at once relieved from all his local and general disturbance, but at the end of six weeks, finding that the cavity still remained open, came to Edinburgh and placed himself under my care. I then treated the case as a fistula in ano, by division of the septum, and when the sore had contracted to little more than half an inch in length, with the discharge of only a few drops of matter during the day, dismissed the patient as cured. Much to my surprise he re-appeared a few weeks afterwards, still complaining that the sore had not entirely healed. It had then assumed the appearance of the ordinary ulcerated fissure, with indurated base and edges, and I thought that an incision through its long direction might induce a healing action, but upon carefully examining the surface, I discovered a minute orifice, through which I passed a probe, introduced a pair of slender forceps and extracted the minute body which I now show you, not larger than a small pin, but evidently a fish-bone, and recognised by the patient as belonging to a flounder of which he had partaken just before his illness. In farther illustration of this subject, I may notice the case of a young man from Aberfeldy, who was recommended to my care, in the month of August last, by Dr. Gairdner, of Crieff, on account of a bone which had stuck in his throat. It appeared that about a fortnight before the time of his admission, while eating rabbit-broth, he had felt the piece of bone become fixed, and applied for assistance to a surgeon in the neighbourhood, who introduced a probang, without affording the relief desired. In addition to extreme difficulty of deglutition, he had latterly become unable to articulate, and suffered from general swelling of the neck, and discharge of fœtid matter from the throat. In these circumstances I considered it expedient to perform the operation of pharyngotomy, by making a free incision between the larynx and sterno-mastoid, cutting through the deep-seated muscles lying over the pharynx, and then opening an abscess from which I extracted this portion of rib. The patient was at once

relieved from all his sufferings, and quickly recovered, without any interruption. Now, you will remark that the contents of the abscess, in the two last-mentioned cases, could not have been distinguished from each other, or from those following injuries of the rectum, where the intestinal matters might be supposed to have found egress : and I may add, that abscesses of a similar character are not unfrequently

met with, not only in the neck and neighbourhood of the anus, where no communication can be traced with the mucous surface, but in other parts of the body entirely beyond the reach of any such influence, as in the arm, which you may recollect seeing lately. On the whole, therefore, it would appear that the irritation of the wound, independently of foreign matters being admitted, is sufficient to produce the effect in question. But, at all events, it must be admitted, that if an ulceration on the bowel were to allow the escape of its contents, the effect would be similar, and, if possible, still more serious.

Now the abscesses which, under all ordinary circumstances, occur at the verge of the anus, differ entirely from those which we have been considering. Instead of being large and diffused, they are small and circumscribed; instead of being preceded by intense inflammation, and attended with violent constitutional disturbance, they take place without either the one or the other of these conditions; instead of being rapidly they are slowly formed; and instead of dark-coloured fœtid matter, they contain merely a little of what used to be called well-conditioned pus. It is such abscesses which lay the foundation of fistula in ano. When allowed to open spontaneously, they almost invariably do so on the external surface—that is, through the skin; and if, when this has happened, or the contents have been evacuated by an incision, a finger is introduced into the rectum, while a probe is employed to explore the cavity formed by suppuration, it will be found that the mucous membrane, although to a considerable extent completely denuded, still remains entire. Sooner or later an aperture is formed by ulceration, through this detached portion of the lining membrane, and then the fistula becomes complete or open on both the external and internal surface with which it is connected.

Then, as to the urethra, it has long been taught that abscesses connected with it in general proceed from ulceration of this membrane, allowing urine to escape into the cellular texture. But whenever urine can be positively ascertained thus to issue from its proper channel, the local and constitutional effects are so violent and characteristic as to prevent the possibility of overlooking them; while the abscesses that usually precede the formation of a fistula in perineo take place slowly and insidiously so as frequently to escape observation until they discharge their contents, which, in the first instance, are almost always simply purulent, the urine finding its way through them only by a secondary process of ulceration in the denuded mucous lining of the urethra, which, like that of the rectum, remains entire for a time. It is true that strictures frequently give rise to abscesses of the perineum, but not by impeding the flow of urine so as to cause its extravasation, their real agency in producing this effect being through the excitement of irritation, which gradually leads to the result in question.—*Lancet, Feb.* 23, 1856, *p.* 217.

ORGANS OF URINE AND GENERATION.

80.—THE SIMPLEST OPERATION FOR UNCOMPLICATED CONGENITAL PHYMOSIS.

By Furneaux Jordan, Esq., Leamington.

[Most of our surgical authorities are of opinion, that circumcision is rarely, if ever, necessary. We may, perhaps, say the same also of those frightful slits which are sometimes seen extending to the point at which the mucous membrane is reflected from the penis. Now the non-dilatability of the congenitally phymosed prepuce is confined to the margin of the preputial orifice, and to the skin and mucous membrane in its immediate vicinity, undoubtedly principally to the mucous membrane; but the opinion that the skin is not implicated in phymosed stricture is very erroneous.]

From the above remarks, it will be inferred that any incisions, which extend further than the parts forming the margin of the prepuce, and for a short additional distance on the mucous surface, are unnecessary, and hence cruel. A single incision, however, as described, would fail to secure the retraction of the prepuce, not because the incision is too limited, but because a single incision cannot possibly relieve the whole circumference of the congenitally-contracted, preputial orifice; two, however, or at most three, of the small incisions in question would afford complete relief.

The mode of operating which I have adopted, and with signal success in its results, is this:—Having first induced local anæsthesia, by applying pounded ice to the penis for two minutes, I introduce one blade of a pair of scissors (blunt-pointed, yet cutting to the end) to the distance of one quarter of an inch, between the glans penis and the prepuce, on one side of the penis, at a point midway between the frenum posteriorly, and the mesial line anteriorly. Both layers of the prepuce being divided to the extent mentioned, a similar incision is made at a similar point on the other side of the penis. The prepuce is now retracted to the extent allowed by the incisions, which by this proceeding are brought quite external, enclosing between their lips an uncut layer of lining membrane. This is divided on each side, by introducing one blade of the scissors, to the extent of, and immediately under, the original wound. The entire prepuce may then be retracted, a piece of wet lint wrapped round the penis, and the whole supported by a proper suspensory bandage. The patient need not lie in bed. Where three incisions seem preferable they should be equidistant from each other, the third being at the mesial point anteriorly, the two lateral incisions should be a little nearer the frenum, than when two only are made.

The incisions may of course vary a line or two, one way or the other in extent, according as the constriction is more or less aggravated.

The recapitulatory points to which I would drawn attention, are :—

1. That the skin is more, and

2. That the mucous membrane is less, involved, than is generally supposed.

3. That two, or at most three, comparatively small incisions will afford complete relief.

4. That no assistant is required, and

5. No instrument save a pair of scissors.

6. Two or three small incisions cause much less irritation, and heal much more quickly than one large one.

7. That the patient need not lie in bed—*Med. Times and Gazette, Feb.* 2, 1856, *p.* 111.

81.—ON PHYMOSIS.

By James Syme, Esq., Professor of Clinical Surgery in the University of Edinburgh.

Phymosis is either congenital or acquired. When acquired, it is either temporary or permanent, and this difference is of great importance in practice, since the means of treatment requisite for the latter are in general neither necessary nor expedient for the former condition. The temporary contraction usually depends upon the swelling connected with inflammation, or the irritation of gonorrhœal discharge, sores, or warty excrescences. It used to be the fashion to slit open the prepuce upon all such occasions, to relieve the patient from present suffering and to facilitate the treatment of his case. But as the cut surface almost always took on an unhealthy action, greatly aggravating the case, protracting recovery, and deforming the organ, it is certainly desirable to avoid, if possible, any such interference. Therefore, if you find that a preputial gonorrhœa or sores have produced the effect, instead of resorting to incision, you should make the patient inject some black wash three or four times a-day, and live quietly on abstemious diet. Under this system, the contraction, if temporary, will speedily disappear; and, if permanent, will soon be disentangled from the diseased condition of texture which would oppose the successful issue of any operation. The laying open of an inflamed prepuce was formerly held to be frequently necessary, for the prevention of sloughing from the intensity of action, but is hardly ever found necessary for this purpose where the use of mercury for the treatment of venereal complaints has been abandoned, or restricted within such narrow limits as to prevent the evils attending its profuse and indiscriminate employment. The only case of temporary phymosis requiring an operation is that of warty excrescences within the prepuce so large and numerous as to resist the effects of remedial agents, a condition fortunately so rare as to be of little consequence.

The acquisition of permanent phymosis depends upon contraction of the internal lining membrane, and this usually proceeds from the cica-

trization of sores, but may also result from a gradual thickening and shrinking of the mucous membrane, independently of any breach in the continuity of its surface. This change generally takes place at an advanced period of life, and may occur without the influence of any local or general derangement that can be recognised, although there can be little doubt that irritation of one sort or another is concerned. The late distinguished surgeon of Berlin, Professor Dieffenbach, in noticing the apparently spontaneous contraction to which the orifices of mucous canals are subject, has mentioned that even the mouth is not free from this change, so as to have its capacity reduced to an extent insufficient not merely for articulation and the ordinary introduction of food, but even for supplying nourishment essential for the patient's wants. He remarked that cases of this kind occurred chiefly in persons who had taken mercury in large quantities, and it may probably be from the horror of that poison entertained in this part of the world, that we seldom meet with such distressing results of bad practice.

In operating for the remedy of permanent phymosis, whether congenital or acquired, the main objects are, of course, to allow the urine free egress, and to permit exposure of the glans; but particular circumstances may occur to render a choice of means for this purpose desirable. The simplest method, no doubt, is slitting open the prepuce, which, however, deprives the glans of a covering, and leaves a flap of skin, which, instead of diminishing, may become thickened, and so inconvenient that I have been requested to remove it long after the performance of this clumsy operation. Removal of the prepuce by circular incision prevents any such troublesome consequence, but deprives the glans of its covering, and therefore should not be employed except when the part has become morbidly thickened or elongated. Some years ago I was sent for to the country to see an old gentleman, considerably upwards of eighty, who had long suffered from phymosis, but latterly to an extent hardly either conceivable or credible. Day and night he was perpetually trying to pass urine, and by the strongest efforts could never evacuate it but by drops. I found the prepuce enormously thickened and elongated, whilst the orifice was so tightly contracted that it admitted with difficulty a common probe. Having slit open the bag thus formed, I found that it constituted a sort of subsidiary bladder, of which the lining membrane was so indurated as to resemble leather, and throughout its whole extent presented an incrustation of phosphatic deposit. As no advantage could have accrued from leaving such a mass of disordered texture, I cut it all away, with the exception of what was necessary to form a union between the skin and mucous membrane at the base of the glans. The patient was at once relieved, and lived in comfort for several years afterwards. You may be surprised at the performance of so severe an operation at such an advanced period of life, but you should recollect that liberties may be taken with the trunk of the body in old age which would not

be warrantable in the extremities. In the lower limbs, especially of old people, you should, as far as possible, avoid the slightest incision, while operations, even of considerable importance, may be performed with a favourable prognosis at the most advanced age on the trunk of a healthy patient. I was once asked to operate upon an old military officer of rank, for a phymosis somewhat similar to that which has been described, and for the same reason adopted a similar course. On leaving the house, I was asked some questions as to diet by the patient's daughter, who remarked that her father was a remarkably healthy man for his time of life. Having supposed from his appearance that he might be about seventy, I inquired what was his age, to which she replied he had just entered his ninetieth year. Though somewhat startled by this information, I comforted myself with the principle just mentioned, and found it verified by the result.

When the textures concerned are in a sound state, and the object of coperating is merely to remove undue constriction of the preputial orifice, the best way of proceeding is a modification of the Jewish process of circumcision. The surgical part of this ceremony, as I have witnessed it, is performed by drawing the external skin of the prepuce through the slit in a silver plate, and cutting it off by a razor-shaped knife, then tearing open the internal membrane which covers the glans, and turning it back so as to place its edge in contact with that of the external integument. Instead of adopting this procedure, which deprives the glans of its proper covering, it is better to remove no more than a ring at the orifice, which may be easily done by means of catch-forceps and scissors, and then drawing back the outer skin so as to expose the inner one so far as it is not sufficiently wide to allow exposure of the glans. The scissors should then be applied laterally on both sides, so as to divide it to the same extent; after which the two flaps thus formed being turned back are connected by a few stitches to the edge of the external covering. If the prepuce, instead of being tightly contracted, is merely narrowed beyond the limit of convenience, it may be widened still more simply without removing any portion of it, by simply snipping the edge of the orifice, drawing back the prepuce so as to bring its inner lining into view, and dividing it in the same way sufficiently far for the purpose, and then introducing a single stitch through the terminal points of the two incisions; or this process may be performed laterally on both sides of the prepuce.—*Lancet, Jan.* 26, 1856, *p.* 106.

82.—ON THE EXTERNAL DIVISION OF STRICTURES.

The doubts and difficulties which for some time agitated the profession in considering the merits and demerits of Mr. Syme's operation for the treatment of stricture by external division, have at length to a great extent vanished, and their place is occupied by certain clear and definite rules for practice which have received the assent and approba-

tion of the majority of our most distinguished and scientific surgeons. The misunderstanding under which Mr. Syme had the misfortune to labour on his first advocating his plan for the cure of stricture, from a general disregard of the distinction he draws between the terms *impermeable* and *obliterated* stricture (a distinction recognised by Mr. Liston and Mr. Guthrie) has disappeared before explanation; so that few surgeons refuse to concur with him in stating, "As to the question of impermeability I simply maintain, that if urine passes out, instruments may always, through care and perseverance, be got in beyond the contraction. It should be observed, that the case here is quite different from that of a distended bladder requiring immediate relief. I have never maintained that in such circumstances the introduction of a catheter was always practicable." If Mr. Syme has been successful in placing himself right with those who misapprehended his views on this subject, he has been scarcely less so in gaining the support of the profession with respect to the position and utility he assigns to his operation. "There are two forms of stricture" he says, "in which mere dilatation has been found inadequate to afford relief." One of these forms is where the contracted portion of the urethra is so very irritable, that the passing of instruments into the bladder, instead of mitigating, exacerbates the symptoms. The other form is where the tendency to contract is so determined, that the effect of dilatation is forthwith counteracted by it, and almost immediately rendered useless. As an instance of this latter form of disease we may cite the case published by Mr. Syme in 1844, in the 'Edinburgh Journal of Medical Science' for October, in which he found the contractile tendency so strong, that within the 24 hours subsequent to each operation, at which large bougies had been passed with perfect ease, the stricture was still as narrow and as difficult to pass with a small instrument as ever. In such forms, either where the constitutional peculiarities of the patient are such as to preclude treatment by dilatation, or where no amount of perseverance in the application of the dilating process will procure for him any alleviation of his malady, the service that may be rendered by external incision, both in affording relief and effecting a permanent cure, is beyond question. Mr. Henry Thompson, in his 'Treatise on the Pathology and Treatment of Stricture of the Urethra,' for which the Jacksonian Prize was awarded in 1852, explains the action of the operation in the following terms:—"When a ring of contractile tissue exists, involving the structures around the urethra to a considerable depth, its complete division is followed by a new deposit of organized material between the incised surfaces, the union of which does not, and ought not, to be permitted to take place by simple adhesion, but granulations having arisen, by adhesion of the granulating surfaces. The new deposit thus formed seems to permit of extension to a far greater degree than the old and dense matter forming the original stricture, and consequently it may, after some amount of consolidation has taken place, be sufficiently extended by dilatation to ensure a

more patent condition of the urethra than before, being at least as amenable to that process as the constituents of a *stricture which is of recent origin*, and which is well known in most cases to be easily and permanently removed by dilatation. On this principle, probably, may the cure be accounted for which often follows such division when all other means have failed.

From the trial that has been given this operation, (and daily the trial is becoming more general), there are ample grounds for declaring that it is extremely free from liability to fatal result. The rate of mortality seems to be but little more than three per cent., and the cases of death that have occurred after the operation may be for the most part be attributed to pyohæmia; while the combined testimony of many reputable operators justifies the conclusion, that the hazard to life arising from hemorrhage and the risk of urinary infiltration, of which so much at one time was said, cannot with justice be urged against external division.

With respect to the mode of performing the operation, Mr. Syme gives the following complete and lucidly expressed directions:—"The patient should then be brought to the edge of his bed, and have his limbs supported by two assistants, one of them standing on each side. A grooved director, slightly curved, and small enough to pass readily through the stricture, is next introduced and confided to one of the assistants. The surgeon, sitting, or kneeling on one knee, now makes an incision in the middle line of the perineum, or penis, wherever the stricture is seated. It should be about an inch or an inch and a half in length, and extend through the integuments, together with the subjacent texture subjacent to the urethra. The operator then taking the handle of the director in his left, and the knife, which should be a small straight bistoury, in his right hand, feels with his forefinger guarding the blade, for the director, *and pushes the point into the groove behind, or on the bladder side of the stricture, runs the knife fowards*, so as to divide the whole of the thickened texture at the contracted part of the canal, and withdraws the director. Finally, a No. 7 or 8 silver catheter is introduced into the bladder, and retained by a suitable arrangement of tapes, with a plug to prevent trouble from the discharge of urine. The process having been thus completed—which it may be in less time than is required for reading its description—the patient has merely to remain quietly in bed for forty-eight hours, when the catheter should be withdrawn, and all restraint removed." In the above extract we have rendered emphatic the direction that the cutting be performed from behind (i.e., from the bladder side of the stricture) forwards, and not, as some of our surgeons in London persist in doing it, from the fore part backwards. This is a matter of great importance. We are far from saying that the operation cannot be achieved, in the latter manner, with success; but we do not hesitate to pronounce that it cannot be so performed with such facility and *security* as in the former plan. We know more than one

instance, where, in dividing from before backwards, the surgeon's knife, just as it has severed the stricture, and lost the resistance of the indurated portion, has escaped from the groove and been plunged down into the tissues below, with imminent peril to the patient. There is, indeed, between these two methods all those differences of grace and precision that are the usual distinctive marks between doing a thing in the right, and doing it in the wrong way.

[It may be assumed that the safest, simplest, and most widely applicable mode of treatment for stricture of the urethra, is that which consists in the employment of gradually progressing dilatation, uncomplicated by any associated lacerating, scarifying, or cauterizing. And indeed, if these are employed we cannot judge of their influence. Independent of dilatation, this is the all important means, and by careful attention to the manner of its employment, we may obtain a hint or two as to the rationale of its action, which may be useful in practice.]

The first effect of passing an instrument gently through a narrow stricture, (and let me be understood as speaking in general terms, and not of exceptional cases), such an one, for example, as will only admit an instrument of the size of about No. 1 or 2, without occasioning much pain or irritation, is that an immediate increase in the size of the stream is usually noted by the patient on the first succeeding act of micturition; but, in the course of a few hours afterwards, the stream is observed to be narrower than it was before the instrument was introduced; there may be even a temporary inability to micturate —in other words, an attack of retention may supervene. Subsequently, the stream gradually regains its previous size and force, and in a day or two probably exhibits a degree of enlargement as the final result of the catheterism employed. The increase, however, is rarely quite equal to that which appeared at the first act of micturition following the operation.

Now the first or immediate improvement must have been clearly due to the mechanical action of the dilating body on the stricture. No one will for an instant imagine that absorption or any allied vital action could have taken place so rapidly as to produce that effect. It was, doubtless, mechanical only. The next result observed, or that of diminution of the stream, may be regarded as the consequence of some temporary congestion, together with some spasm, possibly, in the parts, arising from the slight degree of irritation necessarily occasioned by the pressure of the foreign body introduced, a phenomena which may be designated by the term *reaction;* and this reaction will correspond, other things being equal, with the degree of pressure exerted, and with the amount of sensibility possessed by the urethra. The third and final result is that of gradual increase in the size of the stream, indicating the stage of subsiding reaction, during which congestion disappears, and at the same time the removal by absorption

of some portion of the original deposit forming the stricture appears to take place, perhaps, in some degree, as a consequence of the action, whatever it may be, which is dissipating the recent congestion. The rapidity with which these actions follow one another, and the extent to which they are developed, vary greatly in different individuals. It is the existence of undue sensibility in the urethra, or its disposition to exhibit the phenomena of reaction with rapidity and intensity which in a great measure constitutes that condition of a stricture which we commonly understand as "irritable," and the extent of which irritability correspondingly prolongs or retards the progress of cure. It is during the last stage, that of subsiding reaction, that the *vital* or *permanent* dilating effect (as distinguished from that which is merely mechanical and transient) is obtained. It is then that the true benefit to be obtained from the employment of dilatation is realized.

Granting that these observations are correct, we at once have explained some phenomena which all must have encountered who are frequently called upon to pass instruments in stricture. All such know practically that nothing is gained by shortening unduly the interval of time which must elapse between each consecutive application of the catheter; but that, on the contrary, considerable irritation is often thus induced, and the progress of the case is rather impeded than advanced; in other words, that the surgeon is making more haste than good speed—a principle which has long been insisted upon as important by the most experienced teachers of surgery.

At this point let us call to mind what is the essential nature of organic stricture. It is the presence of a deposit of organized material in and around the urethra, occasioned by inflammatory action originally set up in the mucous membrane. Bearing this in mind, it should be a cardinal principle of treatment to avoid producing any action which might in any way tend to excite renewed inflammation. A repetition of the catheterism should never be made until what has been termed the period of reaction has subsided, and the disturbing effects of it have disappeared. If we pass an instrument during that period, we increase or prolong reaction without attaining the permanent benefit of the process which would have succeeded it. It is not possible to achieve progress at that moment. We may pass instruments day after day; but if on each occasion this is done before the period of reaction has disappeared, we shall not only fail to advance, but we shall probably intensify that condition, or convert it into one of inflammation, and thus increase an evil, which the same application, were it less frequently employed, would effectually obviate. The golden rule which must guide us in applying dilatation, both in regard of the extent to which it is to be carried at the time, and of the proper length of the interval which is to elapse between each repetition of it, is to apply just so much dilating power as is compatible with a minimum degree of irritation; to exercise just so much mechanical pressure as can be

exerted without producing pain or uneasiness, much less any obvious signs of inflammation; and not to reapply the instrument during the period of reaction—that is, until any excitement produced by the previous catheterism has completely subsided. The fulfilment of these indications will conduce most safely and certainly, and in the long run the most quickly, to a successful result.

From this point of view, we may at once perceive how it is that rudely or rapidly conducted dilatation, although apparently successful for a time, is certain ultimately to increase the evil which it was intended to avert. Thus it is that a patient with long standing stricture will frequently observe that his complaint has become notably more obstinate and confirmed after each succeeding course of treatment—that is to say, the contraction reappears with greater rapidity and force than it has done before. He has probably been treated by a too rapid succession of instruments, or by some irritating agent which, at the same time that it opened the passage for awhile, has induced fresh inflammation, and therefore fresh deposit in or around the existing stricture, a result which is destined with absolute certainty to assert itself at some future period more obstinately than before.

It is probably due in a great measure to a disregard of the vital actions resulting from its employment, that dilatation has been pronounced by some surgeons inadequate to afford a complete and lasting cure of any stricture, and has been by many unquestionably underestimated as a therapeutic agent. And thus it is that complicated machines, in almost inexhaustible variety, have been designed for the purpose of scarifying, cutting through, and even of cutting out the urethral obstruction. The construction of these appears, for the most part, to be based on the idea that the urethra is a tube possessing merely mechanical properties, an obstruction of which is therefore to be treated by the application of merely mechanical powers. If, however, dilatation be employed by steps sufficiently gradual, and with special care not to excite any degree of inflammatory action, the result will generally be exceedingly satisfactory, not merely in mild cases, but in those of no ordinary severity. But if, while opening the contraction by dilatation, we at the same time irritate unnecessarily or inflame the parts acted upon, we shall at least only afford temporary relief to the complaint at the expense of its future augmentation. Employed in this way, dilatation is assuredly no cure for stricture.

It would be easy for me to demonstrate, by the recital of numerous illustrative cases, that the rationale of the action of dilatation upon stricture here offered, and the principles deduced from it, result from an extended observation of the physiological phenomena which arise in connexion with catheterism, but I forbear to occupy space in this manner. The foregoing remarks form a brief record of the facts, which the details of many cases would but present in a manner necessarily less forcible and trite. I am daily more convinced that simple dilatation, regarded in relation to the vital action with which its employ-

ment is associated, is a safer and much more powerful remedy, than it is when applied as a mere mechanical agent, irrespective of the indications which a regard to its physiological action affords ; and that the cases are exceptional which are not amenable to its influence, provided it be judiciously employed and maintained for a sufficiently long period of time. The exceptional cases are, for the most part, those in which the urethral sensibility is so great, that the reaction following simple dilatation is sufficiently violent to render this mode of treatment extremely tedious and uncertain ; or in which extensive and long-standing deposit around the canal has taken place, and manifests a retractility so obstinate and confirmed, that nothing short of free division of the abnormal tissue appears capable of effecting a complete cure.

[The external openings of these passages are most commonly seen about the scrotum or perineum ; they comprehend three very distinct typical forms of morbid condition, each requiring a method of treatment equally distinct in order to be appropriate.]

1. The first class embraces those cases where, in connexion with stricture of the urethra, one or more fistulous passages exist, by which the urine traverses the perineum or scrotum, the surrounding parts being not much altered from their natural or healthy condition. In this category may be classed the great bulk of the cases ordinarily met with. Without entering into the pathological history of these fistulæ, they may be briefly regarded as the result of Nature's mode of affording relief in cases of narrow stricture,—in other words, as safety-valves to the dangerous pressure which is being exerted upon important organs behind the obstructed point; as—while they nevertheless form fresh complications of the original complaint—most effective guarantees against those more dangerous consequences which would otherwise threaten, in the form of actual retention, or as chronic inflammation, hypertrophy or perhaps dilatation of the bladder, of the ureter, or even, at last, in organic changes of the kidneys themselves. Thus we may often see patients with large fistulous passages in the perineum giving exit to all their urine, enjoying extremely good health for years together. But the excessive annoyance, sometimes the pain, besides the tendency to grow worse, which, even in these exceptionably favourable cases, are necessarily present in connection with urinary fistulæ, to say nothing of considerations arising in relation to the sexual function, demand the interference of the surgeon to bring about a natural state of things. Now, with regard to the large class which we are considering, as a rule, nothing else is required than to dilate fully the urethra. The urine will flow by the natural channel, and the fistulæ will heal of themselves, if we ensure a free passage from the bladder. There need be no meddling with the fistulæ; the less they are touched the better. Their disappearance is almost certain if we can maintain the urethra in such a condition that a No. 8, 9, or 10 catheter can pass easily into the bladder. This is a

proposition which may be regarded now as fully established, and I shall therefore believe it unnecessary to adduce cases illustrative of a result to which I am daily bearing witness. Those patients who form the exceptional instances to this general rule are for the most part weak in constitution, have little reparative power, or are subjects of some chronic disease in addition to stricture of the urethra. The management of such may be conveniently considered with the next class, viz. :—

2. Those cases in which the fistulæ pass through tissues which are more or less indurated and deformed by repeated deposits of inflammatory exudation; such being often connected in some part of their course with cavities, the sacs of former abscesses secreting thin or sanious pus.

It may be almost unnecessary to observe that in such instances the primary object must be to dilate adequately the stricture and to observe the effect induced. In most even of these cases this is sufficient to enable the surrounding parts slowly to improve, and, finally, the fistulous passages to take on the healing process. The dilatation, however, having been made and maintained for some time, and little or no benefit having resulted in the condition of the fistulæ, there are two courses open, one or other of which it will be desirable to adopt: the first is, to stimulate in some measure the walls of the fistulæ themselves, and so bring about adhesion of opposing surfaces; the second, to lay them open, in order to produce recent and healthy wounds, so that they may heal up soundly from the bottom. But associated with such treatment, it is of the highest importance at the same time to attend closely to the patient's general health, seeking to maintain the secretions and excretions in a natural condition. Very much is to be done by judicious care and management of his regimen and habits, by the selection of an easily-digested and nutritious diet, and by the administration of tonic medicines and cod-liver oil.

Various agents have been employed for the accomplishment of the local measures first named. One of the most useful is the concentrated tincture of cantharides, applied on a camel's-hair brush, or on a probe armed with lint, or a fine syringe. Solutions of the sulphates of zinc or copper, and of the nitrate of silver, have been introduced by means of a syringe, sometimes with apparently good result. One of the best modes we can employ is to introduce carefully, as far as it is possible, a small and flexible silver probe, coated with nitrate of silver. The probe, thus armed, must be carried quickly up the fistulous sinus, a plain probe having been introduced immediately before-hand, as a guide to the length and direction of the passage. It often happens that the external orifice of the sinus is smaller than any other part of it. It is advisable, in such a case, to apply a little caustic potash, for the purpose of enlarging it, and so facilitating the removal of the discharge.

The cure of obstinate urinary fistula has often been attempted by introducing a catheter, and permitting it to remain in the urethra for

days together, on the principle of ensuring, as it has been supposed, the passage of the urine through the instrument, and thus preserving from irritation the fistulous passages.

Little, however, is gained by these efforts, for experience shows, that however large the instrument may be, and however closely it may fit the urethra at the present moment, before twenty-four or thirty-six hours have elapsed it will lie loosely in the canal, and urine will pass by its side. It is not possible, in fact, to remove urine from the bladder, and at the same time to avoid contact with the urethra, for any lengthened period by this means. But further, if the attempt to maintain the urethra distended, by substituting an instrument of larger size as soon as the inlying catheter is inadequate to fill it, be persevered in, it is not unlikely to result in ulceration of some part of the urethral walls, a condition which will not aid us much to produce any healing of the fistulæ associated with it. I have seen this accident produced solely in this way, and its manifestation became too obvious in the formation of a fresh fistula anterior to the scrotum, where the urethral coverings are thin, purely from an unsuccessful attempt to empty the bladder, and prevent the urine from coming into contact with the urethra by this means. The passage of urine by the side of an instrument is due, as I have had frequent opportunities of observing, when maintaining catheters in the bladder for the treatment of narrow stricture, to an action which it is impossible to prevent in these circumstances—viz., that of capillary attraction. As soon as there is the slightest interval of space between the catheter and the walls of the urethra, urine begins to drain off, in obedience to the law referred to. This action remains in continuous exercise, and is to be distinguished altogether from that by which urine flows freely in obedience to an expulsive effort of the bladder. In this case, it is true, the fluid takes commonly the course of the catheter; but the continuous drain which occurs by the side of the instrument from the cause named, inevitably defeats our efforts to preserve the urethra free from the presence of urine. The mode of treatment, therefore, which consists in tying in a catheter, is to be regarded as generally inadequate to the cure of fistula, and it is one which has obtained countenance chiefly from the plausibility of a theory which is certainly unsupported in practice. It will generally be better to withdraw artificially all the patient's urine, by introducing a catheter three or four times a day, if it be really necessary, than to permit the instrument to remain in the bladder, and prove a source of constant irritation.

Free incisions through the fistulæ, down to their origin in the urethra, or nearly so, have been sometimes found successful in inducing a new and healthy process of granulation from the bottom of the wound, and thus in ultimately producing complete closure of the unnatural passages,—provided always, however, that there is no obstruction to the free egress of urine by the urethra, otherwise no

such measure can be of any service. In some cases in which external division of the stricture on a grooved staff is indicated, this operation may be performed in such a manner as to include the fistulous opening in the incision, in which case a successful result may generally be reckoned on. Whether or no, a simple incision carried through the fistulous track may sometimes aid in ensuring the free discharge of matters hitherto more or less confined within irregular cavities, and so preventing an insuperable obstacle to reparative action in the tissues.

For considerably more than a century, it has been occasionally the practice amongst surgeons, especially in France, to make an artificial opening in the perineum upon a grooved staff, in order to give issue to the urine, for various purposes in connexion with diseased bladder and urethra. In this manner the irritating fluid being withdrawn by a short route, the parts anterior to it were relieved from its injurious influence, and were observed to acquire a healthy condition, This operation, which became familiarly known as the Boutonnière. was practised by Colot, Ledran, Chopart, Dionis, Lafaye, and J. L. Petit, in various circumstances. Much more recently the puncture of the bladder by the rectum has been practised with a similar result, more especially when an unusually narrow or irritable stricture has existed with numerous fistulæ. The principle upon which these methods of proceeding have been serviceable is that of removing all sources of irritation, but particularly the constant passing of acrid urine from both the natural and unnatural channels which had hitherto given exit to it. The precise mode in which it should be made applicable must be determined according to the individual requirements of each particular case. The instances, however, in which such measures are necessary, must be looked upon as of rare occurrence.—*Lancet, Jan.* 26, *p.* 94; *Feb.* 16, *p.* 180, *and April* 12, 1856, *p.* 399.

83.—ON THE TREATMENT OF STRICTURE OF THE URETHRA BY DILATATION, &c.

By Henry Smith, Esq. (Read before the Medical Society.)

[In consequence of the great attention which has been given of late years to the consideration of cutting operations, surgeons have been insensibly led to place much less reliance upon the treatment than they ought to do. Good, however, has unquestionably been effected by dividing strictures, but, on the other hand, much mischief has been done. The author in discussing the merits of dilatation, says,]

The comparatively little benefit which was produced by it in the more obstinate and contractile strictures arose, in a great measure, from hasty and insufficient attempts to dilate by using small catheters and metallic sounds—instruments in themselves well adapted to the

majority of cases of stricture, but capable of doing much mischief in the class of cases he was now alluding to. Local and general irritation, to a great degree, was the result of repeated attempts to pass small metallic instruments; abscess, hemorrhage, laceration, and occasionally death ensued. Some cases were mentioned where fatal effects had followed the employment of catheters. He had seen so many unsatisfactory results proceeding from this treatment, that he had of late adopted the use of wax and flexible bougies in the early part of the treatment of complicated cases, and he was convinced that much more good could be effected, and that dilatation could be carried on in a more safe and effectual manner. Bougies, especially those of wax, caused no irritation, and the surgeon could much more readily hit the orifice of the stricture with an instrument which caused little pain, and would adapt itself in passing along to the form of the urethral canal. He had treated in this way patients who had been under the care of most experienced surgeons, but who had used small metallic instruments, which produced such irritation, that in some of the instances the patients, from absolute dread, would not permit of their use, and he had been able to carry on dilatation in this manner where it could not be effected before. When, however, he was able to get up to a No. 5 or 6, he had laid aside bougies, and carried on the remainder of the treatment with catheters or metallic sounds. His observations applied solely to the more intractable and complicated cases, for in the majority of instances of stricture he would employ the catheter from the beginning of the treatment, and use it throughout with the best and speediest result. When, however, it became evident as it would do in some of these cases, that dilatation alone would not succeed, we should not hastily resort to cutting, but call to our aid some less dangerous but yet powerful remedy, and this existed in potassa fusa, which the author had used for several years. He had found it of great service in cases where there was a dense and unyielding stricture, especially those situated in the penile portion of the canal, and which are, contrary to general recognition, by far the most undilatable. Mr. Smith wished to be particularly understood that he considered that potassa fusa should only be employed as an adjunct to dilatation. Holding this principle in view, we should not be betrayed into using it unnecessarily, or trusting too much to it. Some cases were related where its good effects were marked. In one instance the patient had been recommended to have perineal section performed; but he afterwards fell into the author's hands, and got great relief from the use of potassa fusa, aiding dilatation by bougies. The author, in conclusion, made some brief remarks on the employment of permanent and rapid dilatation. He considered that there were many cases of old callous strictures where the urinary organs were not irritable, which would be greatly benefited by these modes of treatment, whether carried on in the ordinary manner of retaining a catheter for twenty-four hours and changing the size from day to day, or by the instruments used by

Mr. Thomas Wakley, which latter could undoubtedly produce most powerful and rapid dilatation. His own observation of their effects had extended to one case only, and here the result was unfavourable; but Mr. Wakley had informed him that he had used them extensively and with excellent results, and there could be little doubt that if the cases were carefully selected, rapid dilatation would succeed well; but he should apprehend, where there was an irritable urethra, or tendency to constitutional sympathy, such a mode of treatment was injurious.—*Lancet, April* 5. 1856, *p.* 374.

84.—OBSERVATIONS ON THE DIAGNOSIS AND COMPLICATIONS OF STRICTURE OF THE URETHRA.

By Dr. Samuel G. Wilmot, Surgeon to Steevens' Hospital, Dublin.

It must be remembered that every case of difficult micturition is not necessarily one of stricture, though the cause may lie in the urethra. There may be force and increased frequency in expelling the urine, as well as diminution in the size of the stream, and still no stricture exist; nay, more, in the absence of urethral lesion need there be any mechanical impediment whatsoever, prostatic, calculous, or otherwise, to the evacuation of the bladder. Further, there may on the one hand be all the symptoms of obstruction to the escape of the urine, and on the other a decided impediment to the passage of some kinds of instruments along the urethra, without stricture, in the accurate sense of the term, being present. Peculiar states of the bladder and of the urethra, in which there exists no mechanical obstacle to the expulsion of the urine, will assume all the characters of the latter disease. There are thus many sources of deception both to the individual himself and to the surgeon, which may lead to great mistakes; hence it becomes all-important to attend carefully to the differential diagnosis of stricture of the urethra. Want of proper contractile power in the bladder may cause the semblance of stricture. In this case the urine is feebly expelled; force more or less must be exercised by the abdominal muscles, and the stream is consequently diminished in size. Sometimes the urine escapes only in drops, or falls perpendicularly between the patient's legs. This condition, it is well known, is in many instances the prelude to paraplegia, being the first signal given of the paralysis which is about to supervene. Often, however, atony of the bladder is quite unconnected with the cause here mentioned, and seems to result from various circumstances. Sometimes it would appear to depend on a relaxed state of the entire system, and is then benefited by whatever tends to give general vigour; and occasionally it can be traced to the custom of retaining the urine for a long time. Boys frequently acquire the habit of holding their urine for several hours consecutively. This gradually destroys the natural sensibility of the bladder to its ordinary stimulus; and when

they grow up, and are placed under circumstances which render it inconvenient to obey the call to micturate as often as it may be expedient, they can readily resist it. Thus by degrees the organ loses its tone, and becomes unable to expel its contents except slowly, feebly, and in a narrow stream.

But exactly an opposite condition of the bladder, one of *increased* contractile power, is equally a source of deception, by leading to the manifestation of the symptoms belonging to stricture. The bladder acts frequently; hence the body of urine in the organ being small, the stream from the urethra is small also, and as there is great urgency and force in expelling it, the case necessarily wears all the appearance of an obstruction in the canal. It is obvious, then, that two precisely opposite states of the bladder will cause the exhibition of the rational symptoms of stricture, and to such an extent, that the only means of dissipating the illusion, and clearing up of all doubt, is to resort to the introduction of an instrument.

Again, similar states of the urethra—diminished and increased contractile power—may produce such an effect on the stream of urine as to make the case simulate stricture. The urethra may be altogether in a relaxed and flabby condition, and the contractile tissue with which it is surrounded, be it muscular or not, and which undoubtedly assists in the final expulsion of the urine, may lose its tonicity, so that the canal can lend no more aid to the bladder in micturition than if it were a tube constructed of some inanimate material; accordingly, the urine can only be expelled in a slow, feeble, and scattered stream. This state of the urethra often affects its entire length, in which case it is met with generally in persons of nervous temperament, particularly such as have suffered from aggravated dyspepsia, or who have enfeebled their health by long continued habits of dissipation. Sometimes, however, and the cases are rare, this relaxed condition of the urethra is partial, occupying the portion in general which corresponds with the root of the scrotum, and then a remarkable effect is produced. The urethra having lost its natural elasticity and contractile tone at one spot, cannot here resist the force of the urine as it impinges against it; accordingly it yields, and gradually becomes expanded into a sort of dilatation, which constantly retains more or less urine. When pressure is made with the fingers on the perineum, corresponding with the distended spot, a jet of urine is suddenly jerked out, and when the patient walks about, there is a continual stillicidium which keeps his clothes wet, and deprives him of all enjoyment. The collection of urine in the urethra must of course impede the escape of that from the bladder; force must therefore be exercised in order to expel it; the stream for the same reason is reduced in size, and some pain is often experienced; hence the case, so far as outward characters go, exhibits the strongest likeness to stricture. This remarkable and interesting pathological condition of the urethra would seem in general to have its origin in chronic in-

flammation of the lining membrane, to a limited extent, which gradually extends to the other tissues of the canal, destroying eventually its elastic and contractile properties; and, indeed, if the urethra be furnished with a *true* muscular coat, it is easy to conceive, reasoning from analogy, how inflammation of its mucous coat will lead to paralysis of the former, and consequent dilatation, as in the case of other muscular tubes, the intestinal one for example. Many persons who have never had the least tendency to stricture find that some time after passing water several drops of urine will escape when they sit down, or happen to make pressure in any way on the perineum. This arises from a deficiency of expulsive power in the urethra, and where the individual is in the habit of voiding his urine hurriedly, without waiting to expel the last drops completely, the relaxation of the canal gradually increases. If in this state the urine should become highly stimulating, as it is apt to do in gouty subjects from excess of lithic acid or lithate of ammonia, the drops retained in the urethra act as a constant source of irritation to the lining membrane; and if, as is so likely to be the case, there be neglect of the proper treatment, and an over-indulgence in the use of wine or ardent spirits, inflammation becomes established, and this gradually leads to the dilatation of the canal which has been described. This change is *essentially* of very slow formation, but a remarkable case, and one not easy to account for, in which it occurred comparatively with rapidity, once fell under my notice.

A man, aged 40 years, addicted to the occasional use in excess of ardent spirits, married, and having a family, was suddenly seized with painful erections at night, which were followed, in many instances, by seminal emission. This condition lasted for about a fortnight, at the end of which time he perceived a slight puriform discharge from the urethra, accompanied by pain and difficulty in making water. The discharge disappeared in a few days, but the pain and difficulty in micturition continued, and gradually increased. After the lapse of about two months a new and remarkable feature attracted the patient's attention. He observed that, for some time after each evacuation of the bladder, when he walked about, a considerable quantity of urine invariably dribbled away so as to keep his clothes wet, and that on pressing the perineum with his fingers, in one spot, a small stream was ejected. In this state he applied for surgical relief.

There was no discharge from the urethra, nor any evidence whatsoever of gonorrhœal inflammation, and he asserted in the most positive manner that he had not contracted that disease for many years. On examining the perineum, I found that at one spot, just at the root of the scrotum, and a little to the right of the mesial line, slight pressure caused the expulsion of a considerable jet of urine; no decided bulging of the canal, however, could be detected, even when the patient made the effort to evacuate the bladder. Wishing to ascertain if there were

any obstruction in the canal, I introduced an instrument, but a full-sized silver catheter passed with ease.

It is difficult to account for the phenomenon presented in this case, considering the comparative rapidity with which it was developed, and the peculiar symptoms which preceded it. There was obviously no stricture, so that the dilatation was not, primarily at least, mechanical. If there had been any laceration of the urethra during the violent erections which marked the commencement of the case, hemorrhage more or less should have been observed, still, such was not the case; and then it may be asked, what was the cause of the erections? It was evidently not gonorrhœa. Did the cause of this peculiar affection lie in any particular state of the urine? At the time the patient applied to me, this secretion was normal. Was the origin of the case ulceration of the lining membrane, leading to the formation of a sac which held a direct communication with the canal? There was not any evidence of such a condition, which is so very rare, where no mechanical obstruction exists in the canal; there was no perceptible bulging of the urethra, no tenderness on pressure over the dilated spot, no puriform discharge, nor other sign of a urinary sac formed by ulceration of the lining membrane. It is clear that the dilatation of the urethra resulted from partial atony of its elastic and contractile tissues; but what was the cause of so comparatively sudden a change in this case cannot be satisfactorily explained.

Now, as in the case of the bladder, so in the urethra; a state of increased contractility, a condition exactly the converse of the last, will give rise to all the appearance of genuine stricture. This leads materially to the consideration of the muscularity of the urethra; but it would be foreign to our purpose to enter here at any length into a discussion on so vexed a question. Every one who has read anything of the physiology and pathology of the urethra is aware that many years ago John Hunter advanced the doctrine that it is unequivocally muscular; his opinion, however, was altogether inferential, being based on the phenomena presented by the normal and abnormal actions of the canal. Sir Everard Home warmly embraced similar views, which were shortly afterwards corroborated by the researches of the distinguished microscopist, Baüer. At this time, however, the microscope, as an optical instrument, was imperfect; hence Baüer's description of those fibres, which were set down to be muscular, was inaccurate. But within the last few years, a period marked with such rapid progress in microscopic research, demonstrative proof that the urethra is furnished with minute involuntary muscular fibres seems for the first time to have been clearly afforded; and to Kölliker and Hancock, particularly the latter, is undoubtedly due the credit of having pointed out satisfactorily most that is now known of the exact situation and distribution of these fibres.

Unfortunately, however, for the settlement of the disputed question, as to whether the urethra be muscular or not, the arguments relied on

as proving its muscularity can be explained on different suppositions; hence, many eminent authorities have denied the existence of an organic muscular tissue belonging to that canal, and have referred certain peculiar actions manifested by it variously to mere elasticity, to "vital contractility," to turgescence of the lining membrane, and to the action of the erectile tissue. There is no doubt that the phenomena presented by the urethra, as they are observed in its normal and abnormal states, are more *satisfactorily* explained on the supposition that the canal is muscular, and this view is supported by analogy; but the decision of the point can only be positively settled by appeal to the microscope; no other means can afford conclusive proof (since it is demonstrative) of the presence of muscular fibres if they exist. And now comes the question,—considering the optical power and perfection of the instruments in use at the present day; and the distinguished authorities, not alone Köilliker and Hancock, but Quekett and others who have equally devoted themselves to microscopic research, and have borne testimony to the existence of the involuntary muscular fibres alluded to—can there be any doubt or source of deception regarding them? But whether we view the doctrine that the urethra is muscular as a reality or not, is immaterial in a practical light, since it cannot be denied that the canal possesses a marked contractile property which is the cause of many remarkable phenomena it presents under certain conditions. It is this contractility of the urethra, exalted to a high pitch by peculiar states of the nervous system, as well as by the influence of weather and climate, which, most of any condition yet mentioned, assumes the character of true stricture, and is accordingly a source of great deception. Persons of a highly nervous, irritable habit, whose digestive functions have been impaired for many years, are apt uniformly to void their urine in a narrow stream, though no trace of stricture be present, nor any of the ordinary causes of the disease having ever been in operation; and on occasions when these individuals are subjected to excessive mental anxiety, there is often so much difficulty of micturition as to amount to retention of urine.

When matters go so far as this, spasm of the voluntary muscles always co-exists; but in the slighter, which are the ordinary cases, the contraction of the canal is altogether independent of the action of the compressores urethræ muscles, and is referrible entirely to that tissue which, as already observed, is, according to microscopic demonstration, composed of minute involuntary muscular fibres. Most frequently the contraction of this tissue is uniform, but sometimes it would appear to be partial, by which a sort of slight annular constriction is formed capable even of offering a feeble resistance to a bougie of moderate size, and this may be situated in any part of the canal from the orifice to the prostate gland. It is easy to conceive how such a state may be confounded with incipient organic stricture. In either case the stream of urine is necessarily reduced in size, and

some force is required in order to expel it. We see, therefore, that two exactly opposite states of the bladder and of the urine—one of augmented and diminished tonic power— will lead to the manifestation of the rational symptoms of stricture. In all such cases we can arrive at a negative diagnosis by introducing an instrument, when, if it pass without meeting any decided obstacle, we must conclude that stricture is absent. But, as has been intimated at the commencement of these observations, a decided obstruction to the passage of an instrument may be experienced in the urethra, and still no stricture, properly so called, exist; this is, indeed, a source of strong deception, for here we have the *sensible* sign of stricture, and when, as frequently occurs, the rational symptoms co-exist, the similitude of the case to the *real* disease is complete. Such cases demand the utmost circumspection, without which serious mischief may be done to the urethra by the use of instruments, and where great care is not taken, even the most experienced surgeon may be altogether misled. Undoubtedly the most common impediment to the introduction of an instrument, apart from stricture, is enlargement of the lacunæ of the urethra; in this way pouches are formed, into which the point of an instrument of small size, particularly a straight one, readily enters, and its onward course is intercepted. This condition is most usually met with where stricture is present, but it is occasionally found as the result of long-continued irritation of the mucous membrane where not the slightest reduction in its calibre exists. The lucunæ, as it is well known to anatomists, lie on both the upper and lower aspects of the urethra, but particularly on the lower; the "lacuna magna," however, occupies the upper, about an inch or an inch and a half from the external orifice, and this is the pouch into which the point of a small instrument is so apt to slip.

Another impediment to the passage of an instrument along the urethra is an exaggerated condition of the natural rugæ of the mucous membrane; these frequently become enlarged and thickened in such a manner that the point of a moderate sized instrument cannot fail to hitch against them, though they may be unable to produce any sensible obstruction to the escape of the urine. Sometimes, however, the contractile fibres of the urethra are at the same time thrown into undue action; the rugæ, therefore, become closely approximated, and the folds are rendered more prominent; accordingly, the calibre of the canal is somewhat diminished, and the stream consequently reduced in proportion; the obstruction to the instrument is also increased, so that the case bears the strongest resemblance to stricture; and the deception is the greater, since it is in the most common localities of the latter disease—the bulb and membranous parts—that the rugæ chiefly abound.

But it is towards the neck of the bladder that obstacles are apt to be encountered which are really mere exaggerations of the natural state of the parts, or only trifling deviations from it. In the prostatic por-

tion of the urethra a complete stoppage may be given to an instrument, though there be no contraction whatsoever, nor any enlargement of the gland. The prostatic and ejaculatory ducts are sometimes considerably dilated, the sinuses on each side of the verumontanum become deepened very often, and in other cases the septa intervening between the dilated mouths of the prostatic ducts form bands which cross each other in various directions, constituting a complete network; in all these conditions it is evident how the point of an instrument may hitch or become entangled. Again, the "uvula vesicæ" sometimes becomes enlarged and elevated, and projects into the internal meatus of the urethra in such a way as to offer direct opposition to the introduction of an instrument into the bladder. Very frequently a band of mucous membrane (quite distinct from what has been termed the "bar," at the neck of the bladder) becomes stretched transversely across the inner opening of the canal, which both obstructs the entrance of an instrument into the bladder, and interferes with the escape of the urine from it; this condition is often met with in persons who have never had gonorrhœa, and usually in those who possess a relaxed and flabby state of the entire canal, such as has been already described.

The foregoing are most of the deceptive impediments experienced in exploring the urethra; and it is quite obvious how easily the surgeon may be drawn into a mistake which may prove, if not absolutely productive of serious consequences, at least of much perplexity and annoyance, not only to himself, but to the patient. In all the states of the urethra detailed the diagnosis rests on—whether it be possible to pass a full-sized instrument or not; in the case of enlarged lacunæ, of thickened rugæ, of prominent "uvula vesicæ," of the transverse fold at the internal orifice of the canal, and of the network which has been described as being occasionally situated in the prostatic part, a large instrument will pass readily, while a small one necessarily hitches, or gets entangled; hence it becomes of great importance always to use a full-sized instrument in exploring the urethra, with a view to the discovery of stricture. When the impediment lies anterior to the bulb a straight instrument will pass with greatest ease; but when it lies far back in the urethra, or at the neck of the bladder, a curved one must be employed.

It too frequently occurs, when a patient applies to a surgeon, complaining of difficulty in micturating, for the latter to prejudge the case immediately, and to set it down as stricture; this leads him to explore the urethra with a small instrument, in consequence of which he is very apt to encounter some of the deceptive obstacles already enumerated; he, therefore, becomes confirmed in his previous belief, and instead of resorting to a large instrument, which would, in all probability, readily pass, and thus reveal the true nature of the case, he descends in the scale of sizes, whereby not only is his chance of succeeding diminished, but the lining membrane of the canal seldom

escapes laceration. We see, then, how numerous are the sources of deception connected with the diagnosis of stricture of the urethra. In some instances the rational symptoms of the disease are exhibited *per se*, in others the sensible sign: while in many both are combined; there may be difficulty, pain, and frequency in passing water, and the existence of an obstacle to the introduction of an instrument, without stricture, in the correct sense, being present.

But, as in the case of most other diseases, the difficulty and trouble involved in the diagnosis of stricture of the urethra is not confined to the distinguishing it from what, in many instances, may be termed spurious forms of the disease; it embraces the recognition of the different species of true stricture, and the discriminating these one from the other. This leads to the classification of strictures; but since to enter here on so extensive a field would be outstripping the limits assigned to the present communication, we shall pass on to the second part of our subject, viz., the complications of stricture of the urethra. Here, again, what a wide scope is afforded for practical study.

The most common complication attendant on organic stricture is spasm, constituting the "mixed stricture" of authors; indeed, there are few cases with which more or less spasm is not occasionally associated, and there is no occurrence more annoying to the patient and perplexing to the surgeon than this, since it varies so much, on the one hand, the capability of passing urine; on the other, that of introducing an instrument. The spasm in these cases is undoubtedly of two kinds: one resulting from the action of that tissue composed of the so-called involuntary muscular fibres; the other from the contraction of the voluntary or Wilson's muscles. The latter is the principal and most important kind of spasm which complicates stricture, for it is impossible that muscular fibres, so minute as to require for their demonstration a magnifying medium of the highest power, can contract so as to produce a forcible closure of the canal; hence Sir Benjamin Brodie's statement, that spasm can alone occur at the membranous part of the urethra, though not exactly correct, according to recent discovery, is in a practical sense, perhaps, perfectly true. In almost all cases of organic stricture, spasm is apt to be excited by exposure to cold, wet, or much fatigue, or by too free an indulgence in the pleasures of the table, particularly in the use of wine or spirits, and very frequently it is caused by rudeness in the introduction of instruments. In some instances, however, the proneness to spasm is so strong that the most trivial causes will induce it, and sometimes it would appear to occur without any assignable cause, or to be produced entirely by mental influence. The latter is so powerful a cause of spasm of the compressores urethræ muscles, that there are some well authenticated cases on record in which retention of urine has occurred from it alone, there being no organic stricture, nor any appreciable lesion of the canal. But the extreme disposition to spasm which marks some cases

of stricture would appear to arise from one or two causes,—irritability of the system generally, and irritability of the urethra itself. The first condition occurs in persons of a highly nervous temperament, and particularly in those who have led a luxurious or dissipated life, and very frequently it is connected with and seems to depend on dyspepsia and derangement of the hepatic function. The second condition—local irritability—is the great source of spasm, affecting organic stricture. It consists in a high degree of sensibility—"*morbid sensibility*"—which is a state *minus* inflammation, and this involves not only the stricture itself, but the urethra in its vicinity, to a varying extent; sometimes it appears to occupy the entire canal, and even to extend to the neck of the bladder, leading to very distressing symptoms, which may simulate those of vesical calculus. This is what many writers have denominated "irritable urethra." In such cases there are always some scalding and frequency in passing water, and in general slight puriform discharge, together with a remarkable fluctuation in the ease with which micturition is accomplished, all which symptoms are greatly aggravated by taking stimulants, by sexual indulgence, and over-exercise. When the stricture is incipient or but slight, an instrument of considerable size will pass, and more readily always than a small one; but as it glides over the diseased spot, particularly if that be situated in the membranous part of the canal, smart pain is experienced. This irritable state of the urethra appears, in many instances, to be connected with irritability of the system at large, such as has been already alluded to; very often, however, it is *purely* local, and may be the result of a stricture being neglected or mismanaged, or it may be the effect of one or more attacks of gonorrhœa during the formation of a stricture. In not a few instances the disease obviously depends on gout; and even where it acknowledges another and more efficient cause, the coexistence of a gouty diathesis will not fail to aggravate the symptoms.

When the urine is rendered highly stimulating from excess of lithic acid, and the lithates—a circumstance so apt to occur in gouty subjects—all the urinary annoyance is increased fourfold; the scalding and frequency in micturition are augmented, and the spasmodic action of the muscular fibres may become so strong as to close the canal completely. Occasionally, though no doubt very rarely, where there is much spasm, and consequently more than usual slowness and difficulty in emptying the bladder, the urine becomes filtered, as it were, and deposits a slight calcareous crust of lithate of ammonia within or behind the stricture. When such an event occurs, the urinary distress assumes often a very urgent character.

A gentleman was recently under my care for stricture, coupled with irritable urethra; he possessed a well marked gouty disposition, and suffered to a great extent from dyspeptic symptoms. Whenever he attempted to depart in the slightest degree from his ordinary food or drink, his urine became loaded with lithic acid or its salts, and this

never failed to add to the local annoyance from which he suffered. After he had been under treatment for the stricture for a short time, and had been considerably relieved, he began to complain, without any apparent cause, of a return of his former symptoms, which gradually increased, and amounted to such a height, that it was with great difficulty and extreme pain he could empty the bladder. I immediately suspended the use of the instrument, but anodynes, and the ordinary treatment for inflammation of the urethra, were unproductive of the slightest benefit. At length, in a paroxysm, he expelled from the urethra a small cake of lithate of ammonia, to the complete relief of all his pain and distress.

The two kinds of spasm which have been described constantly occur separately, but often they are combined, the entire canal being in a state of undue contraction, in such cases the difficulty of micturition is considerable, and the surgeon feels, almost immediately upon introducing a bougie, long before it can arrive at the stricture or membranous part of the urethra, a certain degree of resistance or slight grasping of the instrument. This state varies remarkably: one day the individual is able to void his urine in a tolerably full stream, and a bougie will pass with facility; the next day, owing, perhaps to wet, coldness of weather, or to some derangement of health, the urethra becomes universally contracted, and the instrument in ordinary use is grasped before it has traversed hardly one inch of the canal.

Another complication with stricture is spermatorrhœa, and this proves not only a source of mental anxiety to the patient, but leads often to extreme physical debility. Frequent nocturnal emissions may constitute a symptom of stricture under any circumstances, but most usually are associated with the irritable state of the urethra just described; the "morbid sensibility" often extending into the prostatic part of the canal, and thus proving a direct cause of irritation to the seminal ducts. It must be remembered, however, that the coexistence of spermatorrhœa with stricture does not necessarily imply the relation between them of cause and effect; the former may have been antecedent to the formation of the latter, being the result of various circumstances. In such cases the cure of the stricture is, of course, not followed by the cessation of the seminal emissions; but where the spermatorrhœa has occurred subsequently to the first symptoms of stricture, and seems to depend on it, or on "morbid sensibility" of the canal in connexion with it, obviously nothing short of the complete removal of these states can lead to a cure of the spermatorrhœa.

A third complication with organic stricture, and one which is particularly worthy of note, is pain and swelling of the prostate gland. Care must be taken not to confound this sympathetic affection with that chronic enlargement of the organ which occurs in advanced life, and which has no dependence whatsoever on stricture; the former disappears when its cause—the stricture—has been removed. Some-

times, though rarely, the sympathetic swelling of the prostate passes into acute inflammation, and may even suppurate. Sir Benjamin Brodie makes two very important practical observations on the sympathetic affection under consideration. He says :—

"1st. Where a simple chronic enlargement of the prostate gland supervenes on stricture of the urethra, the latter usually becomes less liable to spasm, and is more easily dilated, and altogether more tractable than it was before: a change in its condition which is easily explained; as the pressure of the urine against the stricture, when the patient strains in making water, is a constant source of irritation, which is, in great measure, removed as soon as a new impediment to the flow of the urine between the stricture and the bladder is established, by the tumour of the prostate.

"2nd. But where the disease of the prostate goes beyond a mere enlargement, and suppuration has taken place in its substance, an opposite effect is produced on the stricture; the abscess itself becoming a source of irritation, rendering the stricture more sensitive, and more liable to spasm than it would have been otherwise."

There are many other morbid states found in connexion with stricture of the urethra, which may be viewed as complications, but they come more conveniently, perhaps, under the head of "the effects" of this disease, such as irritable bladder, swelling of the testis and epididymis, hydrocele, dilatation of the urethra, &c., &c.; but to enter upon the consideration of these would be to enlarge far too much the extent of the present communication. By it the principal object intended has been to invest with importance the differential diagnosis of stricture, to point out the various sources of error by which the surgeon may be misled; and surely, though more serious mistakes can be made, there is none more *humiliating* than to keep a patient for months under treatment for stricture, aggravating his case, when the occasional introduction of a large instrument, and a course of tonic medicines and sea-bathing, would effectually remove all the symptoms.—*Dublin Quarterly Journal, Feb.* 1856, *p.* 76.

85.—*On the Improved Method of Cauterizing Strictures.* By J. Z. Laurence, Esq.—In the 'Medical Times and Gazette' for September 29, 1855, I suggested a new method of cauterizing strictures of the urethra, which it will be as well to quote briefly:—"If the point of a catgut bougie be immersed in nitrate of silver in a state of fusion, ... with the addition of a small quantity of water . . . . . by twirling round the end of the bougie in this liquid, you may get its termination coated with a fine layer of the caustic . . . . The mode of application is this:—Pass a full-sized straight catheter, with one terminal aperture completely *down to* the stricture; then pass the armed bougie (having previously marked off with a scratch of the nail the extent to which you wish to project it) through the

catheter *into* the stricture; the whole track of this latter may then be freely and equably cauteried by gently rotating the bougie."

On the advantages this method of cauterization possesses over those hitherto in use I shall not dilate; they will be found fully explained in my original communication. Since that time I have used bougies armed by this method on several occasions, and find its application easy and efficient. Moreover, I have further found that fine catgut bougies may be equally well coated with the potassa fusa as with the nitrate of silver. The only additional precautions necessary to observe are, first to grease the end of the bougie slightly before dipping it into the fused potash, and to allow this latter to cool a little before using it. The thin layer of soap thus formed by the grease and the alkali prevents this latter acting destructively on the fibre of the bougie.

Mr. Coxeter keeps bougies armed with the nitrate of silver after this method ready for use; those armed with caustic potash, the surgeon must prepare himself directly *before* using them, on account of the deliquescent property of the potash.

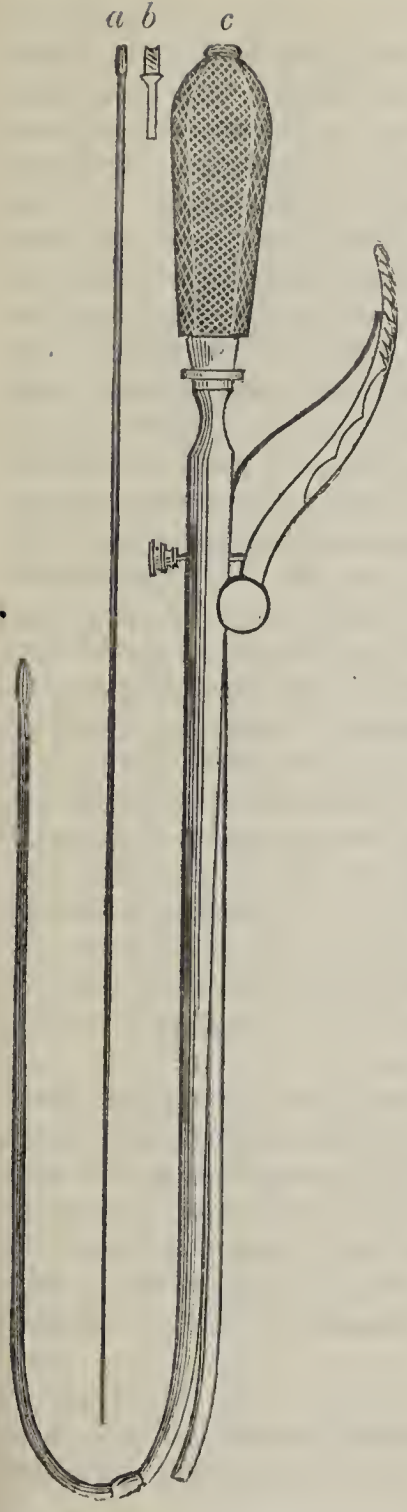
Without wishing to enter into the curative powers of caustics generally in urethral stricture, I may state that Messrs. De Morgan and Moore, of the Middlesex Hospital, have both informed me, that they have succeeded in effecting excellent cures by the potassa fusa in cases that had resisted dilatation.—*Med. Times and Gazette, February* 23, 1856, *p.* 196.

86.—ON STRICTURES OF THE URETHRA, AND THEIR TREATMENT BY INTERNAL INCISIÓN.—MAISONNEUVE'S METHOD.

By William Acton, Esq.

[The following is the abstract of a paper on "The Radical and Instantaneous Cure of Strictures," which was read before the Academy of Sciences by M. Maisonneuve, who is perhaps the most distinguished teacher of surgical and operative anatomy in Europe.]

The plan consists in introducing filiform bougies (as seen in the adjoining woodcut, marked *a*) into the urethra, and screwing on to the broader extremity other instruments, thus enabling the surgeon to introduce into the narrow passage (the filiform bougie acting as a leader) scarifying instruments, dilators, instruments for cauterization, and lastly, cutting instruments for the division, particularly that of Frère Come, which is the instrument M. Maisonneuve prefers for performing incision. Thus, as he states, it is an adjunct to other modes of operating, and he asserts, one unattended with danger, having the additional advantage of not employing previous dilatation. The treatment of M. Maisonneuve has this additional peculiarity, that he thinks it inadvisable to leave any instrument in the urethra or bladder



a. Filiform bougie, little larger than a thread armed with its articulating extremity.
b. Section of articulating extremity, to which various instruments may be screwed on.
c. Frere Come's cutting instrument, with bougie attached.

after the incision; he merely allows the urine to find its own way out of the bladder, and maintains that this is the scientific treatment in such cases. He moreover asserts that this operation is not attended with hemorrhage, only a few drops of blood being lost during the operation.

M. Maisonneuve gives the results, in his pamphlet, of several cases. I shall not speak of them here, but prefer describing the operation which I myself witnessed at La Pitié. The case was that of a man brought in the night before with retention of urine. The history was obscure, and the patient a talkative fellow; but, as far as could be collected, he had long suffered from stricture, which had been treated from time to time. Fifteen days since, the more urgent circumstances began, and within fifty-six hours the aggravated symptoms from which he now suffered were complained of. There was great prostration, with sunken, sallow features, in a man who had apparently drunk freely, and had paid little attention to his sufferings. Considerable redness and puffiness of the cellular tissue around the root of the penis and scrotum existed, but I did not feel the stricture, as I was taking notes. The patient had not been able to pass urine for some considerable time.

M. Maisonneuve commenced by taking one of his small bougies, like a thread, as seen in the adjoining woodcut marked *a;* oiling it well, and bending up the little point, he succeeded, after great tact and perseverance, in introducing it into the bladder. He then withdrew it, and passed another small bougie, to which is attached the little articulating extremity seen in woodcut, marked *b*. This entered the bladder more freely, but required great management to prevent its bending back upon itself—an occurrence which I should, *à priori*, have thought possible, if not probable; but the professor holds the part close to the

glans, and insinuates rather than pushes it on. He now screws his larger instrument to this filiform bougie, and pushes it on into the urethra; so the little introductory bougie leads the way, the bougie No. 2 following until the No. 1 is coiled up in the bladder; but of course the passage, although open, does not so very readily admit this instrument; still, as he observes, when once the little leader is in the bladder he is master of the position. M. Maisonneuve now withdrew the instrument entirely, thinking he felt some hard substance, and suspecting that a piece of bougie or foreign body had been broken in the urethra, (but this he subsequently found was not the case;) what he took for a foreign body was but the indurated urethra, which was strictured in several places. He next introduced the filiform bougie, and attached the cutting instrument to it, this being oiled and curved as in engraving. The introduction of this large instrument was not an easy task, but still he succeeded by some manœuvring, and, in withdrawing the instrument, cut the stricture and all that offered resistance. M. Maisonneuve next introduced a stilet to see if there was any foreign body; but finding none, he attempted to pass a catheter with a short curve, but without avail; next the ordinary catheter, and with as little success, the parts being altogether changed in structure and direction. I think M. Maisonneuve might have been able to have passed a gum-elastic sound, but he did not attempt it, and I dare say he had a reason for not trying it. He merely attempted to pass the metal bougie of Beniquée, but in this he did not succeed, and ultimately an elastic bougie reached the bladder. He objects to leaving any instrument or catheter in the bladder, as being unnecessary. He ordered a bath as well as an opiate enema, and considers that the patient will be able (now the passage is made free) to empty the bladder in the bath, and everything will do well.

M. Maisonneuve subsequently showed me a case of stricture about to leave the hospital, which he had operated on ten days previously. In this instance, as in others, he does nothing more than incise, and the patient gets well in fourteen days. On the subject of relapses he says, nothing at present can be affirmed; it is a question to be judged of hereafter; but to prove that the case was progressing favourably, the operator passed a large bougie in my presence, which proved that there existed a free passage.

I should be ill discharging my duty to those who read these papers did I conceal the fact that M. Maisonneuve's method of operating on stricture met with much discussion when the subject came last June before the Surgical Society of Paris.

The novelty of the proceeding was called in question, as well as the correctness of the name given to it—"the instantaneous and radical cure of stricture." The opponents of the operation remarked, that all that could be said was that it procured an instantaneous flow of urine. The author was told that he assumed that all cases of stricture were permeable; whereas many cases did not admit of the passage of the

smallest instrument, and, therefore, could not be operated on in this way. M. Ricord cited a case in which severe hemorrhage followed the operation, and which it was very difficult to control. Two other cases were acknowledged to have been followed by death dependent upon purulent absorption. The operator, however, stated that these occurred when he operated in a different way from that here noticed. Objections were made to incisions in general; and to the mode of making incisions within the urethra with this particular instrument, as giving no guarantee that the cure would be permanent. Several speakers cited examples of the difficulty of preventing incisions of the meatus from healing and contracting, as well as the difficulty of preventing the opening of the urethra from closing when amputation of the penis is resorted to; and great doubt was thrown on the question, whether, after any of these operations, a radical cure took place. It appeared from incidental observations, that at Lyons the operation devised by M. Reybard has been nearly given up, in consequence of the results having been so unfortunate; and it was further mentioned, that the prize at the Academy had been given to this M. Reybard, not on account of the instrument which is objected to, but in consequence of the value set upon his observations, which have thrown light on the pathology of stricture. We gain, then, from this discussion, that dilatation is the usual and best plan for treating stricture even now; that it is generally successful in careful hands; that the cases are few in which the surgeon is obliged to resort to incision; but at the same time it is admitted that there are cases calling for operation, which however should not be decided upon without due consideration, and after the failure of other means. That if a patient can, with tolerable ease, bear a reasonable stricture, it is better to do so than be operated upon, as experience has not yet found the radical cure of stricture, notwithstanding all that has been said to the contrary; and sad experience, in London and Paris, has convinced the profession that the operation, as hitherto performed, is not free from dangers, such as hemorrhage, purulent absorptions, fistula, &c.*

I would, therefore, ask my professional brethren to examine the instrument which M. Ricord now uses, and decide if it does not present advantages which no other has hitherto possessed. I would ask operators to try it, and report on the results. It may be improved on, I admit; but I think it is the instrument that is formed on the soundest practical experience. I would, moreover, call the attention of hospital surgeons to the filiform bougie

* I may mention, that the perinæal section of strictures has met with little success in Paris M. Ricord told me that he operated in this manner as seldom as possible; and since my return to London, I have seen a gentleman who came to London to consult the profession as to whether he should submit to the operation recommended by a distinguished surgeon; the unanimous opinion in London being that, as a good-sized bougie could be passed, he had better be contented, and not run the risk of the operation. I may further mention, that similar opinions were expressed in the last edition of my Treatise, published in 1851.

of M. Maisonneuve, together with its articulating extremity, as being a very useful instrument in many cases of retention of urine, and capable of finding its way into the bladder as a director to other instruments, when the usual catheters or bougies fail to do so. Whether they will be disposed to approve of Frère Come's cutting instrument, is another question; but as a leader and pioneer of the passage, no doubt can exist of the utility of the filiform bougie, and in a severe case I should have no hesitation in employing it; and I have little doubt that before long we shall find M. Maisonneuve making improvements on his present plan.

That some modification of incising strictures is the only feasible plan of treating some forms of the complaint, may be judged of from the following case, which has lately come under my treatment, and the success which has attended the operation, may, perhaps, be considered to deserve notice, and assist others in the treatment of similar cases, which although alluded to by authors, are not usually given in detail.

A gentleman of middle age called upon me to-day (Nov. 25th, 1855) stating that he suffered from incontinence of urine. He was a married man, and the father of several healthy children. On examining him, I found the prepuce oddly attached to the glans, which depended upon phymosis having existed in early life. On asking him to pass urine in my presence, I found the stream very small and sluggish. The introduction of an instrument was very difficult; it was almost impossible to pass the smallest elastic bougie, and after proceeding an inch and a half, another obstruction presented itself.

The patient states that before marriage he had gonorrhœa, which he neglected, and his case had been very prolonged. The stream of urine has been gradually becoming diminished, and he is often called upon to micturate, although he can occasionally hold his urine eight hours. The primary obstruction appears like a membrane stretching across immediately within the meatus, and no hardness can be felt along the canal. As an operation is the only chance of relief, the patient is to call in a few days.

I placed the patient in a good light, and proposed to divide the meatus, which was very narrow: but this the patient greatly objected to, so I promised to attempt to operate on the first stricture, which I could see just within the meatus. lying like a curtain across the canal, with a very small pinhole aperture. I withdrew the knife from Ricord's instrument, (vide 'The Lancet' for Jan. 12th, p. 37), and with some difficulty introduced the point against, rather than through, the curtain, as I found it presented little resistance. I, however, succeeded in dividing the stricture, and passing a bougie, discovered another stricture an inch behind the meatus. I now found that the narrow opening at the meatus was dilatable, and introducing the instrument again, I divided the stricture, and passed a tolerably-sized bougie which however, I did not leave in the bladder. In the evening, I

again passed the bougie, to prevent cicatrization, and again at prolonged intervals, so that now the patient, from having been worried for many years in micturition, passes urine in a stream that surprises himself.

In all the cases I have yet seen, no unfavourable symptoms have occurred, and I think that the internal incision of stricture, as executed in the present day, is a valuable acquisition to science, and deserves to be employed more generally than it is, not superseding, but to be looked on as a valuable adjunct to, dilatation, now that our instruments are adapted to the cases we have to treat.

January, 1856.—I have seen and passed a bougie for this gentleman, who has had no return of the complaint. The meatus is moderately small, but very elastic, enabling me to pass a full-sized bougie; there is no impediment in the situation of either of the late strictures, and the patient expresses himself delighted at being now able to pass urine better than at any period of his life.—*Lancet, Jan.* 26, 1856, *p.* 91.

87.—*Treatment of Perinæal Fistula.*—The plan which Mr. Lloyd, of St. Bartholomew's Hospital, has repeatedly pursued with success is by the injection of acetum lyttæ, in one case, which was left after lithotomy.

The fistula was extremely small, but sufficient to allow a few drops of urine to escape; the urethra was of course quite pervious, and, excepting the sinus, the perineum was in a healthy condition. The lad was about 12 years of age, and had been operated on for stone, two years ago. Repeated attempts had been made in other Hospitals, both by the use of the actual cautery, and other means, to procure the closure of the fistula, but without success. The injection of the acetum lyttæ was practised (by Mr. Jowers, Mr. Lloyd's House-Surgeon(twice a week, for several weeks, with the result of procuring perfect closure.—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 137.

88.—*On Irritable Bladder, with Excessive Pain.*—A case brought into Hospital, was that of a man, aged fifty-six (W. H——), on whom we saw Mr. Fergusson operate about the middle of July, for distressing and continued irritability of the bladder, in whom, in a word, there had been for a long time present some of the worst symptoms of stone in that viscus, without stone being present. All the ordinary remedies had been previously tried in vain, when Mr. Fergusson, as a last resource, suggested and had recourse to the operation of cystotomy—an operation not at all like lithotomy, as he stated at the time, but more in the manner of Syme's or Allarton's operation in the mesian line of the perineum, the intention being to cut across the nervous plexuses and irritable parts at the neck of the bladder.—August 18: About a month after we saw this patient again; he expressed himself wonderfully

relieved as regarded the torture he had previously suffered; the wound was then still open in the middle line of the perineum, though the urine passed through the natural passage.—Oct. 5th, we find the man is quite well. This patient was a very bad subject for any operation, his entire system having suffered from the effects of long-continued pain of a neuralgic character.—*Lancet, Oct.* 13, 1855, *p.* 337.

89.—CASE OF LITHOTOMY—ALLARTON'S OPERATION.

By J. Erichsen, Esq., University College Hospital.

A young man—a favourable subject for lithotrity, or for the new operation by dilatation of the prostate and incision in the median line brought recently into notice by Allarton—having presented himself at University College Hospital, Mr. Erichsen decided to give the patient the chance of this improved operative proceeding, in preference to either lithotrity or the lateral section. Amongst the more prominent advantages of Allarton's operation, it is said it results in a perfect cure in a few days, while in lithotrity cases, and too often also in common lithotomy, we need hardly remark, the cure is lengthened out to as many weeks or months; and amongst the artizan or working classes this is a matter of primary importance. This man had lithotomy performed before, for instance, and was ill with fistula for six months after. The average rate of mortality amongst old and young patients, from the lateral section, is something like twenty per cent., if not higher; while the new method holds out the gratifying prospect of reducing this terrifying evil to one per cent. For these several reasons alone the young man wished for the new operation, which was accordingly performed last Wednesday week.

Very marked differences of surgical opinion, we may remark, exist as to the originality and value of this operation. The question of originality is one of entirely secondary moment, and may very well merge in that of the safety and value of the patient's life, and the avoidance of the "lateral section." Indeed, as any single idle objection always lessens the weight of an objection better founded, it may be that the fault found with the proceeding of the Italian surgeons, De Borsa and Manzoni—viz., that dilatation of the prostate is more dangerous than incision, may be quite as groundless as that other objection, that the operation ought not to be undertaken because it is not original, but the old Marian proceeding, *apparatus major*, and some other things long since given up. It is said of two great chemists, one of these our own Wollaston, that they made all their discoveries by resolving to examine nothing but the refuse materials of other chemists, long thrown away as useless. We have now chloroform; we have also a better knowledge of anatomy, better means of checking inflammation, &c., than Marianus, in 1520; and all the tendency of conversation in hospitals amongst the best surgeons leads to acknowledge the necessity of

some surgical Wollaston, so to speak, who would review all the old operations of Raw and others, and give us something better than an operation which allows one death in three cases in old patients. This Allarton has tried to do.

We recently directed attention to a modification of Allarton's operation, as practised by Mr. Lloyd (The Lancet, vol. i., 1855, p. 512) an operation also in the case of a young man, in which Mr. Lloyd intentionally divided the sphincter, but otherwise followed Allarton's directions. That case, and some others by the same surgeon, succeeded very well, at St. Bartholomew's. The operation, as performed by Mr. Erichsen, on the 14th inst., is perhaps tedious, and to those looking on not a little irksome: yet if the cure be so rapid as to be effected in a few days, and the average rate of mortality be anything like what is represented, we may soon disregard the tediousness, and hope to dispense with large cutting gorgets, and something not unlike obstetric forceps, which we occasionally see thrust into the bladder in the Cheselden proceeding, too often, it is to be feared, lacerating the neck of the bladder and capsule of the prostate, or, as we have recently observed, unavoidably tearing through cervix, prostate, and rectum. It is quite true and obvious that very large calculi could not be removed by the dilatation process of Allarton, yet the very apprehension of danger of the lateral operation, it is observed in the operating-theatre, increases the danger, as patients put it off till it becomes a last and fatal resource; whereas, if the rate of mortality were changed from twenty per cent. to one per cent., patients would be less fearful, and small stones would be found as the rule in our operating-theatres, and not, as now, the exceptions. The conscientious surgeon would also, as in lithotrity, teach his pupils to disregard the irksomeness of such operations in the satisfaction of saving his patient. We would advise our winter students to try the operation for themselves on the dead body. The innovation, it must not be concealed, is one of very great seriousness, but there are few things we break away from so reluctantly as old and venerable prejudices.

There was nothing unusual in the previous history of the case operated on by Mr. Erichsen on the 14th instant, except its being an instance of recurrent calculus. The points we have just lightly touched on were fairly and broadly stated to his class, with that anxiety for their improvement which always distinguishes the prelections and clinical observations of this surgeon. Experience alone can decide as to the value of the "dilatation" method. We have had experience on a large scale of the Cheselden operation; yet when it is remembered that Raw had 3000 (!) cases by a lithotomy operation not now understood, but a modification of the Marian method, and *not one death*, and then call to mind one death in three, five, or seven, it must appear that there is ample room for improvement upon the operation by the "lateral section."

The directions given by Mr. Allarton are so concise that we are

tempted to give them in his own words. "I introduce a grooved staff," he says, "of the usual size, and confide it to an assistant, with directions to keep it perpendicular and hooked up against the pubes; I then introduce the index finger of my left hand into the rectum, placing its extremity in contact with the staff, as it occupies the prostate, and press it firmly against the staff so as to steady it; then, with a sharp-pointed, straight knife, with a tolerably long and rough handle, *I pierce the perineum* in the middle line, about half an inch above the anus, or at such a distance as may appear necessary to avoid dividing the fibres of the external sphincter. I carry the knife steadily and firmly on till it strikes the groove of the staff, the deep sphincter lying between the knife and the directing finger, which latter enables me to judge of the distance as the knife passes along. Having struck the groove of the staff, I move the point of the knife along the groove towards the bladder a few lines, and then withdraw it, cutting upwards, so as to leave an external incision of from three quarters of an inch to an inch and a half, according to the presumed size of the stone. The escape of urine indicates the entrance to the urethra. I then introduce a long, ball-pointed probe, or wire, through the external opening into the groove of the staff, and slide it into the bladder, to sufficient depth to insure its safe lodgment in that viscus, and withdraw the staff. I then well grease the index finger of the left hand, and pass it along the probe, with a semi-rotatory motion, through the prostate into the bladder; and when the stone is free it comes at once into contact with the finger, and, *if of moderate size, passes readily into the wound on withdrawing the finger*, the patient having power to strain upon, and thereby facilitate the extraction of the stone; this last-mentioned power being one of the great advantages of this operation." The author then goes on to observe, as remarked also by Mr. Erichsen, that, the incision being strictly in the median line, no muscles are divided, and no gaping open wound is left, as in the lateral section, and as even in this very case before, for six months. The integrity of the bladder being preserved, and no chloroform given, the patient himself helps to expel the stone.

It will be observed here that the prostate is not incised, but merely dilated, and thus the chief evil of the lateral operation is in some measure surmounted. It is worthy of remembrance, however, that Deschamps cut a nick in the prostate, and that Mr. Syme finds it very difficult to dilate what he calls the ring of the prostate, even on the dead subject, to more than a circle of an inch in diameter, and he states that if this annular substance be torn the patient will die. For all stones of the size of a large walnut, Allarton's operation, therefore, would appear to be very satisfactory. If the prostate be divided longitudinally for larger calculi as far into its substance as this ring extends, or better still, perhaps, in the zig-zag manner of Martineau, of Norwich, so as to leave more room for the extraction, the gland usually tears very readily, and without bad consequences. Even the

bistourie cachée, cutting this ring from within outwards for very large stones, is by many French surgeons conceived not so dangerous as too much dilatation or laceration. Sir Astley Cooper, it will be remembered, in 1819, removed a somewhat large stone from the bladder by the operation now advocated by Allarton. Deschamps and Sir Astley thought it, even in their time, not improbable we should go back to the Marian plan, so much were they dissatisfied with Cheselden's operation. It cannot be denied, however, as objected to the *apparatus major* by Mr. Coulson and some other surgeons, that with it we run the risk that the whole of the canal, from the opening of the bulb to the body of the bladder—namely, the membranous portion of the urethra and prostate and cervix—will be more or less "contused, lacerated, and injured in a frightful manner;" but, we submit, only by very large calculi. It is also equally clear that in every possible form of lithotomy we must have the same dilatation of parts to extract the same sized stone; in fact, *cæteris paribus*, we must have a certain aperture through which we extract the calculus, whether in the lateral or median operation; the real question seeming to be where the opening is to be, and the surgeon will content himself with an aperture such as we have just described in Allarton's own words, with or without incising the prostate, and thus extracting the stone by slow and gentle dilatation, or the more striking and showy operation in the side of the prostate, to make room for large forceps, with chances of bursting the left side of the gland, and tearing the neck of the bladder—that ring of gland structure so well described by Liston and Syme. Sixteen patients were operated on also by De Dran about 100 years since by the Allarton method, without a single death, the chief secret being slow and gentle dilatation.

Nov. 21st.—A week has now elapsed, and the man has not shown a single bad symptom. It seems the rectum was adherent to the membranous portion of the urethra, attached by the cicatrix of the former operation and the *old* fistula. The bladder, also, has been unusually irritable before and after the operation; so that the case was not even the most fortunate for the new operation, as was suspected when he first came under observation. The patient, however, may be considered cured.—*Lancet, Nov.* 24, 1855, *p.* 494.

90.—ON MR. LISTON'S METHOD OF HOLDING THE KNIFE IN LITHOTOMY.

By William Fergusson, Esq., F.R.S., Professor of Surgery in King's College, London.

(Read before the Royal Medical and Chirurgical Society.)

The author contended that Mr. Liston cut with the knife underhand, and not overhand, as has been represented in the works of Miller, Pirrie, Erichsen, and even that of Liston him-

self.. He (Mr. Fergusson) accounted for this mistake by supposing that Mr. Liston's artist, whilst intent upon the anatomy of the parts, and the position of the point of the knife, had considered the attitude of the hand as of minor importance. Thus, Mr. Liston had actually misrepresented his own operation ; and that his pupils, whilst professing to describe it, had taken his representation as the model, and so perpetuated an error which in time might possibly lead to much misapprehension, if not to evil consequences.

[Mr. Erichsen said there did not appear to be any absolute certainty as to the exact mode in which Mr. Liston held the knife in lithotomy, but he believed that Mr. Liston changed the position of the knife according to circumstances ; in the first incision he held the knife in the manner described by Mr. Fergusson, but in the second incision the knife was pushed forwards as a gorget. Mr. Ashton, who has seen Mr. Liston operate several times said, that he always held the knife in the way mentioned by Mr. Fergusson.

The editor of the 'Lancet,' in an article on this subject, says :—]

It is remarkable, considering the thousands of living persons who have witnessed the performance of lithotomy by that great surgeon, that a mistake should be generally entertained respecting his mode of proceeding. It is clear that the error originated with the draughtsman of Mr. Liston's diagrams, and has been perpetuated by other authors. The matter seems one of little moment at the first glance, but it is surely desirable to settle such differences of opinion, if possible, whilst there are living witnesses respecting them. It is still a matter of doubt how the great Cheselden held the knife in his operation, and that doubt can now never be removed. If the subject had been broached immediately after his disease, we might have had evidence adduced that would have determined the question. We think that the profession will be glad that Mr. Fergusson has brought the subject under notice, for probably no surgeon who ever lived has exerted so much influence on the mode of performing the operation as the late Mr. Liston. We have seen him operate for lithotomy on many occasions, and are fully impressed with the correctness of Mr. Fergusson's statement.

[In a letter Mr. Syme addressed to the editor of the 'Lancet,' on this subject, he says :—]

In the discussion which took place at the Royal Medical and Chirurgical Society of London, on the question of "How Mr. Liston held the knife in lithotomy?" it seems rather surprising that the knife itself was not produced in evidence, since the simple inspection of it would have rendered any argument unnecessary to show the absurdity of alleging that, in the deep incision it was held "underhand," or in more intelligible language, with the operator's forefinger resting upon the back of the blade. The first time Mr. Liston performed litho-

tomy, on which occasion I held the staff for him, he used a common scalpel, with a piece of cord wrapped round the blade, so as to leave it exposed only to the distance of an inch from the point, *in order to protect the finger from being cut whilst resting on the edge.* He afterwards had knives made for the purpose, with a longer blade, and a blunt portion continuous with the sharp edge, sufficient to afford a secure support for the finger. The idea of running a knife into the pelvic viscera of a patient, without confining it *between* the finger and a director, would not have horrified Mr. Liston less than that of introducing forceps into the bladder before room had been afforded for the urine to escape, and thus commencing extraction before the parts were prepared for it by suitable dilatation.—*Lancet, April* 5, *pp.* 374, 378, *and April* 12, 1856, *p.* 410.

91.—*Radical Treatment of Hydrocele.*—A man, aged 31, has recently been under Mr. Lloyd's care, in St. Bartholomew's, on account of a hydrocele which had been several times tapped, and on one occasion treated by the injection of iodine, with the hope of permanent cure. The latter expedient, however, had failed, the sac having refilled. Mr. Lloyd adopted a plan, which has long been a favourite with him, of introducing a little of the red precipitate into the sac. The fluid having been drawn off by a canula, large enough to allow a director to enter it, the latter instrument, oiled, and then dipped in the powder so as to carry a few grains adhering to it, was introduced and moved about in the cavity. The introduction was repeated two or three times; some inflammation followed, and a perfect cure ensued. The practice has the advantage over that by injection of not requiring any special apparatus. Mr. Lloyd believes it also to be more uniformly successful.—*Med. Times and Gazette, April* 12, 1856, *p.* 361.

92.—ON PARACENTESIS OF THE SCROTUM.

By Frederick C. Skey, Esq., Surgeon to St. Bartholomew's Hospital, London.

[The subject of these remarks was a publican, about 55 years of age, who was labouring under an advanced stage of ascites and anasarca.]

The legs and the scrotum were both largely distended with fluid. Before operating, my attention was directed by Dr. Lobb to the fact, that pressure on the scrotum entirely emptied that appendage, when steadily persisted in for some short time, and on removing the pressure and placing the man in the upright posture, the fluid again gravitated into the bag, which became distended as before. It was obvious that the continued pressure caused by the water had broken down or elongated the fibrous and cellular tissues about the cord, and

thus opened the communication between the abdomen and the tunica vaginalis.

Under these circumstances, I determined to evacuate the serous contents of the abdomen through the scrotum, and with this view, I introduced a full-sized hydrocele trocar into its lower and most pendulous part. The fluid flowed readily and continuously till some quarts had escaped, when, in the hope of expediting the process, I withdrew the lesser canula, and introduced a common ascites trocar. I gained, however, nothing by the change, for although the contents of the scrotum flowed off very rapidly, yet the full supply became exhausted, and the free current interrupted, by the disproportionate size of the inguinal canal, on the one hand, and the canula on the other. The opening in the canal appeared to be nearly equal in size to that of the smaller canula, through which the water flowed *pleno rivo*, as the old medical writers expressed it; whereas, through the larger tube, the current was small and unsteady. There existed, in fact, all the differences that may be observed between the current of urine formed by the contraction of a young and healthy bladder, and that formed by the debilitated bladder of advancing age.

Practically, this case affords matter for more than a passing observation. Anasarca of the scrotum is a common attendant on ascites in the male subject. As a general rule, it commands but little attention, the interest which would otherwise attach to it being merged in the larger evil. If the question were now asked of the surgical world, how often does the relation that existed in the above case prevail in other cases? I doubt whether a very positive, or even a satistory reply could be obtained. The fact of the communication is curious, if it be nothing more. It is very true that the operation of paracentesis abdominis is neither a difficult nor a dangerous operation, but it will hardly be denied, that, simple as it is, paracentesis of the scrotum is yet more so. Is it not, then, worthy examination how far the two collections of serum are contained in a continuous cavity?

I have been rather successful in the obliteration of *chronic* sinuses by means of the destruction of their internal surface by strong nitric acid.

Wherever inflammation, or even redness, has attended them, the application has generally failed; but the larger majority of these canals are not inflammatory, but chronic.

The mode of applying the escharotic is by means of a fine glass tube of length sufficient to reach the full extent of the sinus. At one end of the tube is a small glass bulb. The air is sufficiently exhausted by the hand, when warm, to draw up sufficient acid to fill the tube, and partly so, the bulb. The instrument, thus armed, is passed into the sinus, and the acid discharged, either by the hand, or by the aid of a lucifer match, while the tube is slowly withdrawn, pouring out its contents along the entire track. I have by such means succeeded in getting rid of several old sinuses that have given me a good deal of trouble.—*Lancet, Jan.* 26, 1856, *p.* 88.

DISEASES OF THE EYE AND EAR.

93.—GRANULAR CONJUNCTIVA OF PALPEBRÆ.

By Dr. Robert Hamilton and Benj. Bell, Esq., Edinburgh.

[This morbid affection is often altogether overlooked, with the lamentable result of gradual impairment or loss of sight to the unfortunate sufferer. It is, therefore, a safe precaution in prolonged disease of the cornea (which may be only secondary) to evert the lid and examine carefully its inner surface, and ascertain whether any roughness keeps up the irritation.]

A practised eye can usually pronounce upon the nature of the case before the lid has been everted. The cornea is seen to have lost its lustre, and its surface is occupied by a number of distinct and tortuous vessels crossing its margin, and continuous with those of the conjunctiva oculi. In general, the vessels are most numerous on the upper half of the cornea, and occasionally they are confined to it. The skin of the superior palpebra has a rather loose and redundant appearance, and the margin of the lid no longer presents the characters of perfect health. On pulling down and everting the lid upon a probe in the usual way, the conjunctiva lining it is seen to be greatly changed. Instead of a smooth, transparent membrane, through which the rows of meibomian glands can be distinctly seen, it is congested, thickened, and irregular, from the presence of small rounded prominences not unlike the granulations of a healthy suppurating sore. Sometimes the granular projections are peculiarly firm, and separated from each other by considerable spaces; and these seem to be the cases in which the cornea is chiefly injured.

What treatment is found to be most satisfactory in this form of disease? We have no hesitation in recommending very strongly, as a local application to the granular surface, the solutio diacetatis plumbi. Various other remedies have been successively extolled and then abandoned, as unsatisfactory; but we believe that the principal cause of disappointment has been a tendency to make the treatment too heroic and mechanical,—the reparatory powers of nature being practically disregarded. This remark seems applicable to the plan of excision, to scarification, and to the free local use of sulphate of copper and other corrosive substances. And probably we may soon see consigned to the same category, the procedure recommended by a recent author, viz., of dusting the acetate of lead in fine powder over the everted lid. This gentleman tells us that it produces considerable pain at the time of its application, but afterwards gives decided relief, *apparently by mechanically filling up the interstices of the granulations, and so producing a smoother surface for the eyeball to move upon.* He adds,—"As the salt slowly dissolves, it probably exerts also an astringent, effect upon the vessels supplying the enlarged follicles and papillæ

and so diminishes the size of these excrescences." The latter part of this therapeutical explanation is reasonable enough, and we do not doubt that the powdered acetate, applied in a fashion so unusual is sometimes beneficial; but the recommendation just quoted is neither very warm nor encouraging, and therefore, most probably, likeother powerful irritants, the new remedy will be speedily superseded.

The diacetate in solution may be employed with great confidence. It should be used, as a general rule, not oftener than once in two days, and the best mode of applying it to the granular surface, is by means of a camel-hair brush of moderate size. On exposure to the air, carbonate of lead is gradually deposited from the solution; and if this has occurred, care must be taken to confine the brush to the supernatant fluid. The application causes little uneasiness, and the improvement is often rapid and remarkable. In illustration of this, we may mention the case of a respectable middle-aged man from Newcastle, who was an in-door patient a few months ago. Three years previously he had suffered from purulent ophthalmia, which soon became chronic, and was treated by various practitioners, both in public and private, during the intervening period. He needed a companion to guide him, the vision of his right eye being limited to a mere perception of light, while that of the left was slightly greater. Both corneæ were nebulous, and overspread with the characteristic red vessels; but the opacity in the right was more dense and central than in the left. The upper eyelids were granular. In three weeks, under the local treatment we have recommended, with due attention to his general health, he was able to read a type of ordinary size, and the improvement was still going on steadily, when circumstances of a domestic nature compelled him to return home.—*Edinb. Med Journal, Nov.* 1855, *p.* 411.

94.—*Purulent Ophthalmia and Strumous Ophthalmia.*—Various forms of remedies are used at the Central Ophthalmic Hospital in these very difficult affections, as well as at the Moorfields Institution. In what is so well known as strumous ophthalmia, quinine and iron given internally (more especially the former) are the chief remedies to rely on, In corneitis, iron is perhaps more valuable; and where the sclerotic is chiefly involved, cinchona and alkalis, and colchicum. In purulent ophthalmia, the plan recommended by Mr. France, with the exception of mercury, has not been much improved on; the depletory plan is not so good as the careful use of nitrate of silver. The sulphate of alum is an astringent in great favour with Mr. Haynes Walton. Mr. France it will be recollected uses it in decoction of poppies.—*Lancet, Nov.* 3, 1855, *p.* 412.

95.—*On Ophthalmia.*—We have been very much struck with the differences of opinion, even amongst our best ophthalmic surgeons, on such familiar, if not common-place, points as the treatment of puru-

lent ophthalmia, and that of strumous ophthalmia, the use of the ophthalmoscope, &c. At St. Thomas's Hospital, Mr. Mackmurdo uses very generally, in ophthalmia cases, a solution of one grain of nitrate of silver to an ounce of water, as a lotion. Mr. Wharton Jones and Mr. Guthrie, we have observed, on the other hand, in similar cases find a strong ten-grain solution preferable. A favourite ointment with the former surgeon is, a drachm of levigated red precipitate of mercury to an ounce of lard, in place of the nitrate-of-silver ointment, which we have seen used elsewhere; at University College Hospital, the granulations on the lids are freely scarified with a sharp, round-pointed lancet, and the red precipitate ointment freely applied, and we must say, with most excellent effect. Dr. Taylor and Mr. Haynes Walton, at the Central London Ophthalmic, are more in favour of solution of sulphate of alum, as at once more economical, more effectual, and not injuring or discolouring the eye. The change effected by nitrate of silver, especially in soldiers dismissed from the army, where it is quite a panacea in ophthalmia cases, being most marked in the production of troublesome pannus, dyeing or staining of the conjunctiva, &c., (the latter is usually lessened, if not removed, by a lotion of six or eight grains of iodide of potassium to an ounce of water.) Mr. Critchett and Mr. Bowman, at the Royal Ophthalmic, Moorfields, we find, in chronic ophthalmia or conjunctivitis, usually employ mild stimuli, solutions of acetate of lead, and sulphate of zinc, though the former may be objectionable if ulcer exists or threatens. If the symptoms are attended with much irritation, the old-fashioned opium wine is perhaps the best remedy. A solution of hydrocyanic acid, about a fluid drachm to the ounce of water, is also very serviceable. If the case have progressed, so as to give rise to troublesome mucous discharge, Mr. Critchett feeds the patient well, and uses the sulphate of copper or nitrate of silver. The excellent directions as to diet and treatment, recently given by Mr. Critchett, ('Lancet,' vol i. 1855, p. 602,) leaves us little to add on this subject. In *acute* conjunctivitis, if attended with lachrymation, the practice of Moorfields consists of leeching, with the subsequent use of iced water. Mr. Critchett believes that stimulation does harm. If however, there be a puro-mucous discharge, he applies a weak solution of the nitrate of silver, with ordinary internal remedies to suit each case.—*Lancet, Nov.* 3, 1855, *p.* 410.

96.—ON EXTIRPATION OF THE EYE.

By George Critchett, Esq., Surgeon to the Royal London Ophthalmic Hospital.

[The method of extirpating the globe described by Mr. Critchett, was first performed at the Ophthalmic Hospital, in October, 1851 It was brought before the profession about two years ago, in a case where

the globe was removed from a child under the impression that there was malignant disease, but which on microscopical examination turned out to be strumous deposit. This operation was first suggested by O'Ferrall, in 1841, and again by Bonnet, in 1842. It has been frequently performed by Mr. Critchett, Mr. Bowman, Dr. Prichard of Bristol, and others, and involves some valuable practical considerations worthy the attention of the profession.]

Further experience in regard to the mode of performing this operation has induced no important alteration. I am more careful than formerly to preserve as much as possible of the conjunctival membrane. I therefore now commence by dividing it as close as possible round the margin of the cornea. I then cut through the external rectus muscle, close to the sclerotic; then the superior and inferior recti, and the obliqui; then draw the globe forwards and divide the optic nerve, turn the globe out of the orbit, and complete the operation by dividing the internal rectus. If rapidity of execution, absence of hemorrhage. freedom from constitutional or local disturbance, and a speedy cure, from the elements of a mild operation, then I do not hesitate to rank this procedure, formerly deemed so severe, amongst the simplest and safest operations of surgery. I have now operated in this way about twenty times, and in no instance have I met with an exception to this statement.

I will proceed, in the next place, to consider the cases for which I have performed this operation, and for which it seems applicable. I may mention that up to the present time it has been limited to malignant disease of the globe, and to tumours within the orbit. I propose to bring before your notice some suggestions founded upon cases in which this limit has been exceeded.

I have recently performed this operation in cases that I would group as follows:—1st. Extensive staphyloma of the globe, with and without recent inflammatory disease. 2nd. Cases where there was reason to suspect the presence of a foreign body within the globe. 3rdly. Cases of severe synblepharon or adhesion of the globe to the eyelid, causing pain, irritation, and deformity, and for which no other operation is of any avail. 4thly. Acute inflammation and pain in the globe, with loss of vision, occasioning great distress, and preventing the use of the other eye, and showing a constant tendency to severe relapses. 5thly. Deep-seated disease of the globe, the result either of accident or of idiopathic inflammation, with disorganization of all the structures, in which the other eye exhibits symptoms of sympathetic affection, threatening gradual failure of sight. I am anxious in this paper to explain and to illustrate each of these groups, and to show my reasons for performing this operation.

1st. In some of the more severe cases of staphyloma, where the entire globe is enlarged, the sclerotic thin, and the deep-seated vessels, both in the choroid and the retina, are much dilated, it is found that

the ordinary operation of opening the globe is liable to certain rather serious inconveniences. When the humours have escaped, the vessels, deprived of the support to which they have been accustomed, give way, and rather profuse and protracted hemorrhage often takes place, which first painfully distends the globe, and then escapes through the lid. This is usually followed by severe inflammation and suppuration of the globe, which continues many weeks, is attended with very severe pain, and often leaves a considerable enlargement, which is prone, from time to time, to take on inflammatory action. In such cases, I am of opinion that the removal of the globe is a far milder operation than opening it in the usual way for the operation for staphyloma. The only objection to the plan is, that no structure but conjunctiva remains upon which an artificial eye can be adapted; but the conjunctiva falls together, unites, and, still retaining its connexion with the muscles, forms a movable curtain, upon which the artificial eye may rest, and by means of which some movement is attained. It can be very readily removed and replaced, and excites less irritation than when the globe remains.

I have operated in this way upon several persons, both children and adults, with a uniformly satisfactory result, but only two or three of these cases present any peculiar features requiring comment.

A little girl, aged seven years, was sent up to me, from the neighbourhood of Stony-Stratford, with an enormous staphyloma, both of the sclerotic and cornea, in the right eye, and a dense central opacity, with partial adhesion of the iris to it, and a very small, eliptical pupil behind the corneal cicatrix. Under the influence of chloroform, I removed the right globe, and enlarged the pupil in the left. The part rapidly healed, and the little patient left the hospital in a week quite cured, and with very useful vision, and though so young, wears an artificial eye. Had I pursued the more useful plan, the result would have been far less rapid and satisfactory. I have not met with a single exception as yet, to this rapid union and recovery.

Two cases of staphyloma have recently occurred, one under the care of my friend Mr. Bowman, and one to myself, in which the staphylomatous globes were the seat of severe and protracted inflammation, which was not only in itself a source of constant distress, but prevented all use of the other eye, causing extreme weakness and intolerance of light. The relief in both cases was rapid, marked, and permanent, far more so than if the diseased globes had been merely opened.

I have now to consider those cases in which the presence of a foreign body is suspected in the globe, and is out of sight and out of reach, but produces pain, and sympathetically affects the other eye. In such cases I believe the removal of the globe is the best proceeding. I will briefly describe two instances of this kind that have come under my notice. The first was a young man named Smithers, who applied to me at the Ophthalmic Hospital last March. It appeared that in June

of the previous year, (1854), when at work, the left eye was wounded by a piece of sharp steel, causing traumatic capsular cataract, with some adhesion of the pupil to the capsule. As the other eye was perfectly good, nothing was done for its removal. About six weeks previous to his coming to me, and about eight months after his first accident, the right eye was struck by a piece of metal, which was supposed to have entered the globe. On examination, I found the cicatrix of a wound of the cornea and sclerotic iris and lens; there was constant and rather severe pain in the globe and over the brow, together with considerable lachrymation and congestion of vessels; and all vision, even the faintest perception of light, was lost in that eye. There was also evidence of sympathetic weakness in the other eye. For all practical purposes the poor fellow was blind. Before attempting any operation upon the left eye for the removal of the traumatic cataract, I extirpated the right globe. On laying it open, I found a piece of iron of considerable size deep within the globe, behind the iris, and partly adherent to the sclerotic, and surrounded with dense fibrine. Even if I had known its exact location, its removal would have been attended with considerable difficulty, and the result would have been less satisfactory. I then applied myself to the other eye, the management of which was attended with considerable difficulty, in consequence of the length of time that had elapsed since the accident, and the tough, elastic, and adherent condition of a large piece of opaque capsule. By means of two needles, after two efforts, I contrived to tear it through; but a narrow band still ran across the very centre of the pupil. This I, after some difficulty, succeeded in breaking by working two needles in such a way as to wind it round one by means of the other until it broke through. For a long time a fine thread floated by one loose end in the anterior chamber. A clear, round pupil was now obtained, and, by means of a suitable lens, he sees very well to do his work, and to recognise even rather minute objects.

The other case was under the care of Mr. Bowman. A fine young man, a gamekeeper, was admitted into the Ophthalmic Hospital, having been shot in the eye some months previously. There was a traumatic cataract, an adherent pupil ,a discoloured iris, and other evidence of a disorganized globe; there was no perception of light. He was subject to severe attacks of inflammation and pain of an intermittent character; but the most serious feature in the case was the gradual impairment in the sight of the other eye. The cornea was rather dull; the pupil rather sluggish; and there was a gauzy indistinctness about the vision. This had appeared about a month, and was gradually increasing. Mr. Bowman removed the globe; and in the interior a shot was found lodged. The man made a rapid recovery, not only as regards the part operated upon, but the other eye, that was the cause of much anxiety, perfectly recovered its healthy condition and normal sight.

The effect of the operation in these two cases, and in all of the

same type, is to free the part and the system of a constant source of irritation by the only available means.

I have performed this operation in two cases of extensive adhesion between the globe and the lids. The first was a middle-aged female, who had suffered from severe purulent ophthalmia, which had caused sloughing of the cornea, and extensive adhesion of the upper lid to the globe, tying down the upper lid so as to occasion considerable irritation and deformity; in the other eye, the pupil was closed and adherent behind a dense central leucoma. I first made an artificial pupil; and then, finding the lens was opaque, I extracted it through the artificial pupil. The patient made a rapid recovery from both operations, and obtained some useful vision, and was able to wear an artificial eye.

The other case was a girl, aged fourteen, whose eyes had been extensively burnt with lime. The lower lid was completely adherent to the globe, and the upper lid was partially adherent; the entire rows of lashes of both eyes were turned in upon the globe, causing constant severe distress, and preventing the use of the other eye. The operation perfectly relieved all the symptoms and deformity, and was, I believe, the only effectual means that offered. Extensive separation of the globe from the lids had been previously tried, and had quite failed. —*Lancet, Nov.* 17, 1855, *p.* 464.

97.—ON THE EXTRACTION OF CATARACT.

By George Critchett, Esq., Surgeon to the Royal London Ophthalmic Hospital.

[Previous to entering upon the particulars of this operation, we shall notice—first, those circumstances that are favourable to its performance; secondly, those circumstances that increase the difficulty and diminish the prospect of success; and thirdly, those circumstances that are thought entirely to contraindicate extraction.]

First, the circumstances favourable for this operation are an eye in other respects healthy, as evidenced by an active pupil, good perception of light, and a normal state of the circulation in and around the organ; a fully-formed cataract, but not of very long standing; if it have developed from the circumference towards the centre, it generally escapes more readily during the operation than if it commence from the centre, because in the former case it is less sticky and more separate from its capsule. The eye should be moderately prominent, the anterior chamber large, the muscular system rather flaccid, the nervous system tranquil, the general healing power good, the age not very advanced. Such is the state both of the eye and of the system most desirable during the performance of the operation and subsequently, and every deviation from it increases the difficulty and diminishes the chances of success. We

may next inquire what these are. A very deep-set eye, with a very small anterior chamber, and a prominent brow; a congested state of the globe, as evidenced by large, tortuous returning vessels, by a sluggish pupil, by pain and fulness in and around the eye, by muscæ, and by ocular spectra; an irritable and spasmodic state of the muscular system, as indicated by deep wrinkles intersecting each other, and by shrinking and sudden closure or involuntary twitching of the lids, when the eyes are examined; an inflamed state of the eyelids; a plethoric and congested state of system, with fulness of vessels about the face and head; previous intemperate habits; inaptitude to heal; extreme old age; and a constant cough. A very feeble state of system has been mentioned as unfavourable, but my own experience has not confirmed this opinion. I have often had excellent union under these circumstances. Any strong predisposition to gout or rheumatism, or the existence of any organic disease, particularly albuminuria and diabetes, are very unfavourable to the operation, and perhaps may be ranked amongst the third division—viz., those circumstances that are thought to contraindicate the operation, and which we may now consider: a diseased state of the globe, as indicated by a fixed pupil and by the loss of all perception of light, or a tremulous iris and adhesion of the pupil to the capsule of lens.

I have dwelt rather fully on these various circumstances, because it is very important for your own comfort and credit, and also that you may be able to make a fair and honest statement to the patient or his friends, that you should be able to give a correct value to each of these circumstances, and after carefully weighing pros and cons, be able to strike a tolerably correct balance. The only conditions that seem to me to render the operation altogether unjustifiable, are a diseased globe, as evidenced by the loss of perception of light, a condition that the densest cataract connot produce, and a very diseased state of system, particularly diabetes. As regards the other unfavourable circumstances, some may be overcome by skill on the part of the operator—such, for example, as a deep-set eye, and a small anterior chamber; and, as regards others, they militate with greater force against any other kind of operation, therefore the choice lies between blindness and the chance which extraction offers, the penalty being an operation which is said not to be painful, and a few weeks of confinement to one room; and the worst result being a permanent confirmation of a blindness which pre-existed.

Having determined as to the propriety of performing the operation, and the patient having been brought into as suitable a condition as circumstances admit, it is desirable to make certain preliminary arrangements. A large and airy bed-room should be chosen; a couch, or sofa, with a scroll end, must be so arranged, with two or three extra squabs or mattresses, that the patient, when recumbent, can rest the head upon the scroll in such a way that the operator can

easily reach the eye from behind. It should be placed opposite a large window, lateral light being excluded. Means should also be provided for effectually darkening the room after the operation.

The instruments required may be arranged as follows:—Those immediately used in the performance of an ordinary operation of extraction, and those that may be required under extraordinary circumstances. The only instruments that are absolutely required are a knife and a curette, with a small silver scoop at one end and a curved sharp-pointed needle at the other. The knife that is now most commonly employed is a triangular instrument, known as Beer's knife, modified as to shape and size according to the taste and ideas of the operator. It should possess certain essentials, to which I would briefly allude. It should be so constructed as completely to fill up the opening it makes as it travels across the aqueous chamber, in order to prevent the escape of the humour. The blade should be as thin as is compatible with the requisite amount of strength; the back should be straight and thin, but not sharp. It is in the length and width of the blade that the chief difference of opinion exists amongst practical men; some preferring a sharp and broad-bladed knife, and others a long and narrow one, and various modifications between the two extremes. The fact is. that each of these shapes possesses certain advantages over the other, and certain corresponding drawbacks, and it is just in proportion to the estimate that each operator forms of their favourable and unfavourable qualities, that he makes his claim.

As these points involve considerations of great practical interest to those who aim at operative excellence, I propose, even at the risk of seeming tedious and over minute in details, to dwell upon them. In employing a short and broad knife, you have the advantage of completing a considerable portion of your corneal section by the time the point has traversed the anterior chamber, and emerged through the opposite side of the cornea, so that the operation may be completed without carrying the knife much beyond this point; but it has the inconvenience of cutting its way with some force and difficulty, and of presenting a surface of the edge to a surface of the cornea so soon as the aqueous humour has escaped in such a manner that the sawing power of the one cannot be brought to bear upon the other, the result of which is a "fix" or "lock," which mere thrusting force will not overcome until the relative bearing of the two is altered. The non-appreciation of this occurrence has given rise to the idea and to the statement that the cornea is sometimes tough, and requires considerable force to cut it through; whereas, this is never the case so long as the sawing edge of the knife is brought properly to bear upon it. The short broad knife seems also to have the disadvantage of not retaining the aqueous humour so completely and so readily as a long narrow blade; neither does it give the operator so much command over the eye. The narrow knife has the disadvantage that it must not only be carried across the anterior chamber, and through the corresponding point of

the cornea, but it must be thrust on for some considerable distance, in doing which the inner caruncle, and even the side of the nose, is liable to be wounded. This may be avoided with care, and after a little practice, and even if it occurs does not in any way prevent or impede any essential step of the operation. The advantages of this form of knife are that it retains the aqueous humour well, not only while the anterior chamber is traversed, but for some way after it has emerged; that it travels along with great ease, always presenting a cutting edge to the cornea, and never becoming wedged against a flat surface of the cornea like the other shaped knife; that it may be passed slowly along, so as to insure great accuracy and certainty; and that it makes the flap very semicircular and even.

After having for some years tried various shapes, I am, from these various considerations, disposed to prefer the long narrow knife. I have the knife made with a small square handle, as I find that it enables me to keep it more perfectly even and steady between my fingers; but this is altogether a matter for individual experience and choice. In addition to the knife and curette, it is necessary, in the event of any untoward circumstance, to be provided with a small narrow blunt-pointed instrument, with a cutting edge, for the purpose of enlarging the section when it has been made at first too small; and a little sharp hook to extricate the cataract, if it does not escape in the usual way; or if the vitreous humour is fluid, or the hyaloid membrane has been ruptured. Lastly, a small instrument, like an ordinary spatula, but about the size of a broad cataract needle, which was first suggested by my friend and colleague, Mr. Dixon, is very convenient for replacing the iris within the section after the cataract has escaped.

Having then provided yourself with suitable instruments, the next point to consider is the position of the patient during the operation. In suggesting at an earlier part of this lecture that a suitable couch be procured, I have implied that I prefer the recumbent posture; but so many eminent operators, particularly on the continent, place their patients in a sitting attitude, that I think it may be expected that the motives that have induced my colleagues and myself to continue a plan which has always been pursued at the Ophthalmic Hospital since its foundation should be explained. It gives the operator more control, and ensures greater steadiness on the part of the patient; it enables the operator to fix the upper eyelid himself, instead of depending upon an assistant for this, as must always be the case in the sitting posture; and in the event of the vitreous humour escaping during the operation, less of this fluid is likely to be lost. Every preliminary being arranged, and the patient having been placed upon the couch, with the head rather low and resting upon the scroll, the operator either stands or sits upon a stool, as may best suit his convenience, behind the patient. I usually prefer standing to sitting. The operating-couch should be placed opposite a window, the lower

part of which is darkened, so that the light may fall slanting from above upon the patient's face. If the right eye is to be operated upon, the knife must be held in the right hand. The upper eyelid must be raised by catching the edge of the upper tarsal cartilage with the forefinger of the left hand, and pressing it upwards against the margin of the orbit, at the same time an assistant slightly depresses the lower lid towards the malar bone. In this way the lids may be effectually kept open and the globe exposed without making the least pressure in the latter, which is a most essential point to attend to. The operator holds his knife as he would a pen, between the thumb and the fore and middle fingers, and rests the ring and little fingers on the temple; he then pauses a little, watches for a favourable position of the eye, and when the patient is quiet and manageable directs him how to place the eye; he takes the bearing of the eye with respect to the position and place of his knife, so as to adjust it parallel to the surface of the iris; he then pierces the cornea at its outer part, about half a line from its junction with the sclerotic, enters the anterior chamber, and then steadily, quietly, evenly, and slowly passes the knife across the anterior chamber, taking care to keep the back of the knife gently pressed against the cornea, so as to fill up the aperture he is making as he travels along. If he will attend to this point there is no risk of the aqueous humour escaping; there is time for regulating the position of the counter puncture, and when this is made all danger from the falling forward of the iris is usually at an end. If he moves the knife along timidly and rapidly, and with the impression on his mind that the aqueous humour is likely to escape, if he does not make haste and get rapidly across, the very thing he dreads is almost sure to occur; but if he moves along with steady self-reliance, by attending to the rules I have laid down, he can keep the aqueous humour in as long as it is necessary to do so, and he will succeed. After the counter-puncture is made, the knife must still be carried forwards until the section is nearly completed.

When there is much spasm it is well to pause for some little time before you quite finish the section; you have now perfect control, and may wait as long as you please. If this precaution be not attended to, the lens, with a considerable quantity of vitreous humour, may be forced out, and seriously interfere with the success of the case; it is therefore very desirable to divide the last part of the cornea very gradually and gently, and this may generally be done most satisfactorily by slowly withdrawing the knife. This will not answer while much of the cornea remains to be cut, partly because the inner part of the section will be straight and angular at its extremities instead of forming a portion of a segment of a circle, and partly because a small bridle may be left uncut, which would necessitate the reintroduction of the knife. At the moment of completing the section, great care must be taken that no pressure is exerted on the globe, and even the tension to which the lids are subjected in fixing them widely open, at

the commencement of the operation, may be relaxed so as to allow of partial closure, and prevent spasm. If the eye turn in at the moment that the knife is traversing, the blade must be inclined with the eye, so as to preserve a plane parallel to the iris: if this is not done the point will emerge too near the centre of the cornea, and consequently the section will be too small, and will require enlarging afterwards, and part of the cicatrix will be opposite to the pupil and will interfere with vision. Directly the counter puncture is made, the knife can be used as a lever to bring the eye back into a convenient position for completing the section, which would be nearly impossible while it is rolled into the inner canthus. It is also important not to encroach upon the junction of the sclerotic in any part of the section: 1st, because the tissue is here much tougher and more resistant to the knife; 2ndly, because it is more sensitive to pain; 3rdly, because prolapse of the iris is more prone to occur; and 4thly, because the tissue does not unite so readily as pure cornea. Again, it is equally important that the section should not traverse too near the centre of the cornea, because it then forms more of a mere slit than a flap, and does not allow sufficient space for the escape of the lens, and leaves a cicatrix just at the axis of vision. Of the two extremes, this is the worst, but *le juste milieu* is the thing to aim at. A perfect section should form a semicircle, and about half a line of transparent cornea should be left attached to the sclerotic: this allows space for the escape of any cataract, however hard and bulky. If the aqueous humour escape very soon after the knife has entered the cornea, or even when it is about half across, the iris falls forwards and envelopes the blade, and must inevitably be cut through extensively if the operation be persevered in; the globe is thereby rendered flaccid, which still further increases the difficulty. It is better, under these circumstances, to withdraw the knife, allow the small wound that has been made to heal, and perform the operation at a subsequent period. If the knife has very nearly traversed the chamber at the time that the aqueous humour escapes, a small portion of iris will fall against the edge of the knife; it is often possible, by a little manœuvring, to complete the operation without removing it: as the knife is passing along a finger must be gently pressed on the blade and on that portion of iris that lies over it, and the back of the knife must at the same time be pressed against the lower part of the section. If it be then slowly and carefully carried on, it will generally be found to have glided over the iris without wounding it; if this cannot be accomplished, I think it is better to finish the section, even though the iris be wounded. Such cases often result in very useful sight, though of course the pupil is large, irregular, and distorted. It is very undesirable to withdraw the knife, and leave the operation incomplete, if it can possibly be avoided. The patient is naturally much discouraged, and the eye is very likely to be unfitted by the adhesions that form for any renewal of the attempt at extraction. It is important that any portion of iris that may have been wounded

should be entirely freed and removed from the eye; or, if a second pupil is formed, that it should be made to communicate with the natural pupil. In the event, however, of the pupil that has been accidentally made being very small, I think it is better to leave it, as it is very likely to close during the healing process; and if it should not, and any inconvenience is felt, it is very easy at a subsequent period to convert the two pupils into one. If the section in the cornea be too small to allow of the escape of the cataract, which may be occasioned as I have already suggested, by making the counter puncture too soon—that is to say, not sufficiently near to the junction of the cornea with the sclerotic—or by carrying the section too much across the centre of the cornea, so as to form a slit rather than a flap, it must be enlarged, by introducing the small knife that I have described within the section, and then, by a series of little sawing movements, enlarging the opening. This is always attended with some difficulty, partly because the eye becomes very irritable and restless after it has once been wounded, and partly because the globe is flaccid, and offers but little resistance to the edge of the knife. Nevertheless it is the only alternative, and must be attempted rather than make any effort by pressure on the globe to force the cataract through an aperture too small to allow of its ready escape; because, if this be done, the hyaloid membrane is liable to give way, and the vitreous humour to escape, causing the cataract to sink down to the bottom of the eye. In such an event, it is impossible afterwards to get the cataract out; it cannot usually be found; and, even if hooked up again, it cannot be made to escape through the small section. Such an unfortunate series of casualties almost inevitably result in a total loss of the eye. I never remember a recovery to have taken place under such circumstances.

When the section is nearly completed, the lids may be partly released, so as to take off all spasmodic effort and possible pressure just at the moment the last little bridle of corneal tissue is cut through. The patient should then be directed to look downwards, and the lids allowed gently to close. A short interval of repose should be permitted, for the subsidence of spasm and irritation, and in order to reassure the patient as to the painless character of the subsequent steps of the operation. I have described the mode of making the upper section only because it is the one invariably adopted by myself and my colleagues at the Ophthalmic Hospital. It appears to me to possess so many advantages over the lower section, that it is hardly necessary to institute a comparison between them.

The next stage consists in opening the capsule, in order to allow of the ready escape of the lens. This requires considerable care and delicacy, and in an irritable eye is by no means easy. The upper lid must again be gently raised, and the curette insinuated between the flap of the cornea and the iris, with its convexity downwards, so as to avoid the entanglement of the point with either. It must then be made

to glide on over the surface of the iris, so as not, if possible, to touch it, as it is by far the most sensitive part, and it is almost sure to cause a sudden, involuntary movement of the eye, which defeats your object for the time. When it has reached the pupil, the point must be turned towards the capsule, and then lightly moved from side to side, so as freely and effectually to open it, without making pressure on the lens, which might displace it, and disturb the vitreous humour, and rupture the delicate hyaloid membrane. You may generally know that the capsule is sufficiently torn through by observing a slight forward movement of the cataract. The curette must then be cautiously extricated, with its convexity upwards towards the operator, being the reverse position to that required in entering between the corneal flap and the iris.

The third stage of the operation now commences. The upper lid must again be raised, and gentle pressure must be made upon the lower part of the globe with the spoon of the curette, in such a way as to act as directly as possible upon the lens, so as to coax it out, as it were, without disturbing or pressing upon the other parts of the eye. Sometimes this is sufficient; sometimes a little counter-pressure with the finger, on the upper part of the globe, is required. Occasionally the cataract escapes spontaneously, from the mere elasticity of the globe and the action of the muscles. As long as the escape is taking place, however slowly, it is better not to interfere. Cases not unfrequently occur, in which the cataract shows an indisposition to move from its position, even when the eye is subjected to as much pressure as prudence permits. Matters are now in a critical condition, and it requires much skill and quickness to divine the cause. It may arise from the smallness of the section, from the capsule not being sufficiently opened, from the cataract being either old and dry, or sticky, and from the vitreous humour being aqueous. It is a curious fact, that the cataract will not present, or make the least effort to escape through an impassible opening; this must be enlarged before any further effort is made. If the capsule is at fault, it must be again carefully opened. The dry and sticky cataracts may be cautiously aided in their transit by light touches of the curette. If the vitreous humour is thin and fluid, and escapes so soon as light pressure is made, it must be discontinued, and the little sharp hook must be carefully insinuated behind the cataract, and it must be brought out with as little injury to the eye as possible. It not unfrequently happens, that as the cataract is escaping through the section, some portion of the circumference, if soft or friable, and readily detached, scrapes off, and remains in the pupil or anterior chamber, or between the flaps of the wound. It is very desirable to remove any portion that may rest on the iris or in the wound, as it would interfere with the satisfactory progress of the case, acting like a foreign body (which is one of the worst enemies the eye has to dread), producing iritis, or getting into the wound, and impeding or preventing union. Where the soft

matter remains in the pupil, many think it is better to leave it there to be absorbed, for fear of again disturbing the eye, and causing the vitreous humour to escape. My own feeling is strongly in favour of removing it, if possible, with the spoon of the curette. If we could be sure that it would remain in the pupil until absorbed, it would be unimportant; but experience has convinced me that it is very liable to be washed by the freshly-secreted aqueous humour into the anterior chamber, or on to the surface of the iris, or even between the flap of the cornea, thus exciting irritation, or preventing union of the divided parts, or preventing the proper nutrition of the cornea.

After the cataract has escaped the eye must again be allowed a period of repose. The patient may then be directed to open his eye, which enables the operator to ascertain if the parts have assumed a favourable condition. If the pupil is not circular, and the iris is protruding through the section, it must be replaced by means of the little spatula I have described; sometimes mere exposure to light will effect this object by causing the pupil to contract. When the pupil is small and round and clear, and the section lays well, and the patient is tolerably tranquil, it is better to allow him to see some object, such as a hand, before finally closing the eyes, as it induces confidence, and quiets the mind. It occasionally happens that the section remains patent and the iris prolapsed in spite of every effort; this may arise either from spasm of the muscles or from extreme congestion of the deep-seated vessels in the eyeball, or from a combination of both. When this is the case, it is better to close the eye, apply cold, and trust to the effect of time and rest for the gradual subsidence of the spasm, the retraction of the iris, and the coaptation of the section. Even where this does not entirely take place, some useful sight may ultimately occur, with a distorted and displaced pupil. As I have before hinted, if the section is completed too rapidly, or if there is considerable spasm of the muscles, or if the vitreous humour has lost its natural consistence, and has become thin and aqueous, under any of these circumstances, or under a combination of two or more of them, a sudden escape of the lens may take place, and with it a certain portion of the vitreous humour. This may for a time prevent the adjustment of the flap of the cornea, or it may be so extensive that the globe may become flaccid, and fall together like an empty bag, and the cornea may be concave. This is an unfavourable state of things; the pupil is always large, fixed, and drawn upwards, and the vision is usually less perfect and less lasting than in cases where no vitreous humour escapes. Where the loss is very considerable, the power of re-secretion sometimes fails, and destructive inflammation of the globe follows. It is extremely difficult to define the absolute quantity that involves loss of sight; it probably varies in different individuals. I have had cases where everything looked most unpromising, and where the eye seemed quite collapsed on account of the extensive loss of vitreous humour, rapidly refill and turn out favourably, while more hopeful cases have been lost.

The most serious consequence of the extraction of a cataract, as an immediate result, is the giving way of some large vessel at the posterior part of the eye. This may take place at the time of the operation, or at an interval of some hours. The patient usually complains of sudden, rather severe, and deep-seated pain, and the vitreous humour slowly and continuously escapes until followed by arterial blood, which first distends the globe, and then flows out between the lids, and often continues to flow on for a day or two. It is usually owing to excessive congestion of the deep-seated vessels, together with spasm of the muscles, and probably some old and unsuspected disease of the globe. This occurrence is fortunately rare. We usually have one such case at our Ophthalmic Hospital every season. The immediate and the remote effects of such an accident are alike distressing to the patient and to the operator; a prolonged and even alarming hemorrhage is followed by severe suppuration of the globe, and of course by total loss of sight.—*Lancet, Dec.* 15, 1855, *p.* 569.

98.—*Chloride of Zinc Collyrium.*—At the Royal Ophthalmic Hospital (Moorfields) Mr. Critchett has some time been employing a lotion of chloride of zinc as an eye-water in cases of vascular and thickened conjunctiva. He holds that the disease is a sort of "gleet of the eye," and analogous in nature to gleet of the urethra. The strength used, is one grain to the ounce. It has not yet found its way into the Hospital Pharmacopœia.—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 137.

99.–A NEW FORM OF ARTIFICIAL MEMBRANA TYMPANI.

By Thomas Westropp, Esq., Bristol.

[There are two varieties of artificial tympana known and used by the profession: the first is what is called the moist cotton plan of Mr. Yearsley; and the other is the vulcanized india-rubber contrivance of Mr. Toynbee. There are certain objections to both of these, which Mr. Westropp proposes to remedy. He says]

In order to be easily understood I shall give but a brief description of my plan, leaving it for time, the profession, and especially the aurists, who have extended opportunities of testing it, to determine the relative merit of each. I do not want to decry former appliances. I believe there will be cases found suited to each, and that the simple remedy, the original moist cotton of Mr. Yearsley, will be borne by some ears when nothing else will, at least for a time. In the first place, my contrivance is a tube, very thin in texture, very pliant and durable in material; it is thus made:—Having accurately inspected the meatus into which we desire to insert an artificial membrane, we must make a model of it in some hard timber. This should be as per-

fect almost as a cast, though not too tight; its end should be flat, cut obliquely, and the circular edge rounded off. This cast or model, previously oiled, should be repeatedly dipped into a solution of gutta percha, in chloroform, till a film of sufficient thickness is formed, to peel off in one unbroken piece. A slit with a knife may be made longitudinally, without detriment, to aid its coming freely off, but the cut should not go within a quarter of an inch of the flat end; it sometimes is necessary to touch with some of the gutta percha solution any inequalities of the membrane. This tube, if the timber model has been properly made, will be found to fit the meatus comfortably, and, when oiled and coated with cerumen, to exclude the external air from the cavitas tympani; the tube should not be allowed to protrude, but should be cut obliquely, so as to lie entirely within the meatus; it easily adapts itself to the parts, the flat circular membranous end lies at the proper angle in the site of the lost membrane or its remains; when it becomes advisable to clean its surface, it can easily be taken out by the patient with a small pair of tweezers, washed in cold water, oiled, and re-inserted. If found to fit, two or three should be made and given to the patient, who should be taught their use. If there be a discharge from any part from the ear, polypi, obstructed Eustachian tubes, a nervous impairment, or any other aural affection, it should be appropriately treated. For functional nervous derangements of the ear, I am in the habit of using locally strychnia, dissolved either in water or glycerine, with the help of a little acid and spirit; I am inclined to think it often does good. Why should it not stimulate the aural nerves as well as it does those of the eye, when dropped on the conjunctiva in functional amaurosis? The more we bring to bear on aural disease our more advanced knowledge of eye complaints, and follow out the analogy, the more we shall advance and increase our success. In conclusion, I beg to remark, that though my contrivance is simple, yet I do not expect every person who tries to make or adjust it will at first succeed; it requires much practice and patience; failures will be as often met with as success in the attempt to construct a perfect membrane, as it is a difficult matter to hit on the proper thickness of the tube; the solution of gutta percha should be rather thin, so as not to coat the timber model too thickly, and to allow of its spreading evenly over its surface; it should be kept in a very small bottle, to avoid excessive waste of chloroform; each coat or film should be allowed to dry perfectly; six or eight coats will be required to complete the necessary thickness, and this takes two or three days to accomplish. The tube should not be peeled off the model when too thin, else it will tear; or should not be made too thick, else it will be hard and tough, and irritate the ear; it should be about as thick as very fine sheet gutta percha, or oil silk; it is then pliable, soft to the ear, and will easily vibrate when adjusted. As might be expected, a great deal depends on the nicety of the model; the timber requires much carving, scraping, filing, and polishing; also the anatomy of each

meatus must be strictly attended to. Without all these precautions, I do not promise that any material benefit (and even at best, artificial aids of any description are only very imperfect substitutes for the original) will be derived. I hope I shall not be understood to say that I have discovered any specific cure for deafness; and I equally hope that clumsy attempts of unskilled persons may not be reflected on a really useful invention.

A point which should always be borne in mind is, that a foreign body of any kind should not be allowed to cause or to keep up otorrhœa. I do not say that an artificial membrane may not be worn when only a slight discharge exists, but it is better to get the ear into a healthy condition first; and even when everything is in as favourable a condition as could be expected, it should be remembered that Nature does not become used to adventitious aid all at once, and that all extraneous matters, whether wooden legs, ivory teeth, or glass eyes, do not feel comfortable to the wearers when first adopted. It is not my intention to detail cases at present. I would merely remark that I have tried my artificial membrane, under two very opposite circumstances, the one as unfavourable a case as it could be tried on, the deafness and disorganization being extreme; the other being the reverse, and a favourable subject to experiment on, part of the membrana tympani remaining with, I believe, the ossicula; and neither the deafness nor condition of ear being very bad. In the former the artificial membrane, contrary to my expectation, increased in a slight though decided degree the power of hearing; in the latter considerable benefit is now being derived from it. I generally first try the moist cotton plan, to see whether the hearing is susceptible of improvement at all; if so, then my artificial membrane is almost sure to answer even better, and even though the cotton do not afford the usual result the thin gutta percha membrane already described being worn for a few days, the patient may, as in a case under my care, announce unexpectedly that he hears better. The entire subject is still *sub judice*, and I hope it will be investigated without the prejudice and malevolence which too often disgrace medical criticisms.—*Med. Times and Gazette, Oct.* 20, 1855, *p.* 391.

DISEASES OF THE SKIN.

100.—ON THE LOCAL TREATMENT OF ERYSIPELAS BY GUTTA PERCHA.

By Dr. G. Hamilton, Falkirk.

[It is a well known fact that the exclusion of atmospheric air exerts a beneficial influence on the healing of ulcers, wounds, and burns, and where this can be effected thoroughly, the healing power goes on quickly, scarcely any pain being felt in the parts. In a severe case of

erysipelas of the leg, a portion of which threatened suppuration, the application of gutta percha plaster and tissues speedily reduced the pain and throbbing, and in two days from the application the leg was nearly well, no suppuration having supervened. Mr. Hamilton gives several other cases almost equally successful. Its modus operandi is by the exclusion of the atmospheric air from the inflamed surface.]

The compression exerted by the gutta percha, as I have employed it, seems to me so exceedingly slight, that we cannot, I think, as has been conjectured in the case of the collodion, suppose this agency to have acted with much efficacy. But if it be assumed that the exclusion of the atmospheric air is an essential condition to be attained in the treatment, then that application should so far be the best which most effectually fulfils this object; and none of those I have seen mentioned appears to me to answer so well for efficacy, as well as ease in the application, and economy, as the common gutta percha paste used by shoemakers (naptha being the solvent), with the gutta percha tissue placed over it, which I have employed. If there be no discharge from the surface, this holds firmly from three to five days, and, when wished after that to be removed, comes off without difficulty, as a simple plaster. I keep the paste in a little tin pot, having a lid which screws on to prevent the naptha evaporating, and when I wish to use this I heat it at the fire or gas, take a portion out with the handle of a tea-spoon, and apply it with the finger. I then immediately place over it the common gutta percha tissue, using the thinnest quality where sinuosities of the skin have to be followed, and, for other parts, that which is second in thinness. Discharges from a wound or from the surface interfere with its operation, the plaster becoming detached in a short time. Even under these circumstances, however, it does not appear to act at all prejudicially. Its specific and most favourable effects, nevertheless, seem to me to be produced, when total exclusion of the air can be procured, and, when thus employed, the experience I have had of its action makes me think that it is worthy of considerable confidence, as a means, in conjunction with other remedies, of combating this frequently formidable disease.—*Edinburgh Med. Journal, Dec.* 1855, *p.* 510.

101.—ON THE TREATMENT OF SYCOSIS.

By Thomas Hunt, Esq., Surgeon to the Western Dispensary for Diseases of the Skin.

[There are few diseases of the skin which are less manageable than this, yet, when the patient is in moderate health, it will frequently yield to arsenic: if this fail, cod liver oil may sometimes be given with greater advantage, as the following case will show.]

Sycosis Menti.—J. F., aged 38, had suffered for two years from a tubercular eruption affecting nearly the whole of the bearded portion

of the face, and rendering it impossible for him to shave. His employment was within doors, and he looked pale and worn. He applied for relief at the Dispensary.

January 2, 1855. He is somewhat weak and wasted of late, and has a slight cough, but there are no physical signs of pulmonary disease. He reported that he had formerly taken arsenic, which cured the disease, but, as he imagines, injured his health, and reduced his strength. A teaspoonful of Dr. De Jongh's cod-liver oil was ordered to be taken thrice a-day after a meal, and no other medicine.

February 6. Up to this time there has been a rapid improvement, but during the last few days there has been a relapse of the disease. The dose of the oil to be doubled, and 10 grains of the pil. rhei comp. to be taken every other night.

March 13. Improving very fast. He can use his razor with comfort. The oil agrees with him, and he is rapidly gaining flesh and strength, and looks better. The dose of oil to be again doubled, and the pills continued.

April 14. The original disease is well, but he is troubled with boils on the side of the face and elsewhere. The dose of oil to be reduced one-half, and a mild tonic substituted.

May 8. Tubercular eruption returned. Bowels costive. Continue the oil, take some cathartic pills, and discontinue the tonic.

29. The disease varies. Continue the oil, and take 10 minims of the liq. arsen. chlorid. with each dose.

June 12. Face nearly well; slight conjunctivitis. Reduce the dose of liq. chloridi to 7 minims.

July 3. Eyes still weak; scarcely any disease remains. Reduce the dose to 5 minims. Continue the oil.

The patient has not attended since the last date, and there is little room to doubt that he continues quite well, and is mainly indebted to the cod-liver oil for his recovery.—*Med. Times and Gazette, Oct.* 20, 1855, *p.* 389.

102.—*Treatment of Sycosis.* (From the French of M. Maurice Chausit.) By Dr. T. K. Barton, A.B.—The *treatment* of sycosis presents, in practice, considerable difficulties, arising from the tendency of the eruption to pass rapidly from a chronic to an acute state; and from the possibility, if not the frequency, of the return of fresh inflammation, the practitioner should never lose sight of this important circumstance, which will so much affect the treatment. First of all, it will be necessary to remove or avoid the causes which tend to produce the disease, such as errors of diet, exposure to a hot fire, and the use of the razor. We would advise, in all cases, the beard to be cut with scissors. When sycosis presents itself in the acute form, and during the inflammatory period, it will be necessary to insist upon the antiphlogistic line of treatment, to consist in the

application of leeches behind the ears; or even bleeding from the arm, if the patient be young and strong, is useful in the beginning. We would advise, too, refreshing drinks and a mild diet. Locally, we employ emollient fomentations, cataplasms of the fecule of potato, and infusion of marshmallows (*althœa officinalis*); we insist especially upon the use of the latter, while the inflammation lasts. When sycosis exists in, or has passed into the chronic state, when all trace of local inflammation has ceased, and it is decidedly in the tubercular stage, it becomes necessary to have recourse to resolvent means more or less active. We have obtained good results from alkaline douches, and from the steam douches, administered at the temperature of 30° to 32° of Reaumer, for ten minutes. We have also found useful an ointment of the ammoniacal protochloride of mercury, or the iodide of sulphur, in the proportion of ℥ss. to ℥i. of lard. This should be rubbed on at night, and in the morning the diseased surface washed with an alkaline solution (bicarb. potassæ, ℥i.; aquæ distil., ℥xvi.) We consider that it is only in the alternate employment of these different means, according as the eruption is in an acute or chronic state, that a certain and rapid success can be gained in the treatment of sycosis. This treatment will be greatly aided by the employment, when they are required, of laxatives, of calcined magnesia, or the sulphates of potash or soda, or by the administration of the waters of Vichy.

It has been proposed to employ cauterization for the cure of sycosis; but M. Cazenave has rejected this as quite inadmissible, inasmuch as the remedy, if it is at all effective, is worse than the disease. Counter-irritation also should not be employed in the treatment of sycosis, as it tends to excite what we should seek to avoid, viz., a return of the acute state of the disease.—*Dublin Hospital Gazette, Oct.* 15, 1855, *p.* 281.

103.—*Treatment of Porrigo Decalvans.* By J. Burton, Esq., Walsall.—The whole calvarium must be shaved every four or five days, and carefully washed each night and morning with soft soap and soft water, and after each washing anointed with the ointment (*ut infra*), which should not be "plastered" on, but rubbed into the depilated spots with the finger.

A wig should be worn, and it is, to my mind, preferable to any less pervious covering for the head.

The mixture to be taken three times a day, and steadily persisted in. The time of cure is very variable. The worst case I have had to treat came under my care on March 19th, 1851; in two months it began to improve; and on May 20th, 1852, I gave up all treatment, it being then cured completely. The patient was a boy, aged 6 years, who had suffered for two years previously, notwithstanding "all manner of treatment by doctors and others." The larger part of the

occiput and nucha, with many patches on other parts of the head varying in size from a ½ to 1½ inch in diameter, were entirely depilated, the skin being of a polished eburnated appearance.

When the hair was restored, it was coarser than natural, and a decided shade darker, which continues to such an extent as to define the porriginous spots even yet.

The diet I have directed for my patients was only restrictive in respect to "trash" of all kinds, and was nutritive and substantial, though void of stimulants.

The medicinal treatment I adopted with the above case was—

℞. Potassii iodidi pur. gr. v.; potassæ liquoris ʒiss.; tr. cardam. co. ʒi.; aq. fontanæ ℥vijss. M. Coch. mag. ter quotidie sumend.

℞. Axungiæ recent. ppt. ℥i.; Creosot. pur. ♏x.; Ol. limonis q. s. M.

The above plan has never failed with me, and whether "really rational" or not, I must leave to the determination of others.

May I be excused in stating that I have got rid of several very obstinate and chronic cases of sycosis, by daily pencillings with tinct. iodin. comp., after all other means have apparently failed.—*Med. Times and Gazette, Jan.* 5, 1856, *p.* 10.

104.–OBSERVATIONS ON SOME OF THE MEANS RECENTLY PROPOSED FOR THE PREVENTION OF PITTING IN SMALL POX.

By Dr. James Wallace, Greenock.

[In a number of cases which came under Dr. Wallace's care, collodion was applied at various stages of the disease previous to maturation. The result was generally satisfactory, but it produced no small inconvenience, for when tumefaction set in, the collodion, being inelastic, kept the parts in a state of pain, heat, and tension; for the same reason also it frequently cracked and required as frequent reapplication. On this account its use was given up, and a solution of gutta percha in chloroform used instead. The most suitable time for its application seemed to be just before maturation.]

It was painted on *immediately before complete maturation*, which occurred in three on the fifth day of the eruption, in three on the sixth, in ten on the seventh, in two on the eighth, in one on the ninth, and in one on the tenth. Under this plan, the increase that took place in the swelling was found to be in general moderate, and not such as to prevent the gutta percha yielding readily to it, nor to cause that feeling of heat and tension, which was so much complained of by the patients subjected to the collodion application; and when the tumefaction subsided, the mask was found to adhere intimately to all the subjacent parts, except at the angles of the mouth, where, from

the frequent motion of the lips, it invariably became detached. But this was easily remedied, either by touching lightly with a camel-hair pencil dipped in chloroform, the loose portion of the covering, which in that way became softened and collapsed upon the skin; or, which is better, by painting anew the exposed part of the face. without disturbing the separated pellicle at all. Farther than this no interference was necessary, the whole coating having been allowed to remain on till desquamation spontaneously occurred, when the face was found, in all the cases, to be in a very satisfactory condition. The ultimate result, too, was exceedingly favourable, scarcely any pitting having been noticed when the patients were dismissed, except in two or three instances, in which, however, it was moderate, and in which, but for the covering, there would, I am convinced, have been frightful disfiguration. At the same time it ought to be stated, that those cases which I had an opportunity of seeing, some months after their discharge, presented the marks much more distinctly than when under observation at the hospital, but still so modified, as to show that they had been very materially benefited by the means resorted to.

From this it will be seen, that the gutta percha, like the collodion, though to a much greater degree, succeeded only in mitigating, and not entirely preventing, pitting. Hence, some may be apt to conclude, that its efficacy was much inferior to that of other applications, which have of late years been brought under the notice of the profession. But in estimating the comparative merits of these, regard should be had to the appearance of the patients, as exhibited *long after* they had been under treatment, as well as on their leaving the hands of the physician. Now, there is strong reason to suspect, that inattention to this has led the advocates of these *abortives*, or *ectrotics*, as they call them, to overrate their value very materially, the history of their cases seeming to go no farther than the date of their discharge, without any allowance being made for the absorption and contraction which invariably take place, to a greater or less extent, in a spot which has been the seat of a small-pox pustule. The face, undoubtedly, may appear, when the patients are fit for dismissal, smooth, and free from all trace of pitting; but after some time depressions will, to a certainty, ensue. At all events, so far as my experience goes, marking as deep, and in some cases much deeper, than that noticed after treatment with gutta percha or collodion, has followed the employment of some of the substances referred to. Of these none has been more highly recommended than the unguentum hydrargyri, thickened with starch, which was first proposed by M. Briquet of Paris, and afterwards brought prominently before the profession in this country by Professor Bennett of Edinburgh. The advantages attending its use were stated to be, abortion of the pustules with prevention of swelling and pain, in addition to almost complete freedom from pitting, in consequence of which, and more especially as I had found the collodion to fail as an ectrotic, I was readily induced to give it a trial before having recourse to the

gutta percha. I employed it, accordingly, in three cases, one of which had the disease in the confluent, and two in the discrete form. In the first, it was applied on the fourth day of the eruption, which was then moderate, and little more than papular; but two days afterwards it became more profuse, and accompanied with pain, heat, and tumefaction, all of which increased to a great degree. At length the pustules ran into one another on the face and extremities, and the mouth and fauces, which were closely studded with them, swelled to such an extent, as almost entirely to prevent deglutition, the larynx ultimately becoming involved, and death closing the scene, fifteen days from the appearance of the eruption, and eleven from the commencement of the treatment.

So far, then, as this case was concerned, the ointment was not at all successful, either in checking the development of the pustules or in alleviating the swelling and pain. Nor was its power in these respects more than problematical in the other two, for although it was applied in both when the eruption was discrete, scanty, and papular, there was ultimately a considerable crop of pustules, the progress of which was in no way different from that exhibited on the rest of the body. The amount of swelling, heat, and pain, however, was moderate, but at the same time, no less than what might naturally be expected in instances of the disease presented in the modified form, the cicatrices besides being found, when the patients were ready for dismissal, as deep as those observed after the employment of collodion. There was, no doubt, entire freedom from that feeling of tension which was so much complained of by those subjected to the latter application; but this advantage was more than counterbalanced in the two cases which advanced to a favourable termination, by the occurrence of mercurialism, which was unequivocally manifested by swelling and ulceration of the gums and mucous lining of the cheeks and lips, as well as by salivation and the characteristic fetor of the breath. The urine, moreover, became albuminous, but whether this was caused by the original disease, or by the introduction of the mineral into the system, could not be with certainty determined. As it took place, however, simultaneously with the ptyalism, and as mercury is known sometimes to be followed by such a condition, there was just as much reason for believing that it was the effect of this, as that it was an instance of that species of albuminuria *(temporary)*, which not unfrequently arises during the course of fevers and some acute diseases. But leaving the state of the urine out of the question, the liability to mercurialism alone was sufficient to make me entirely abandon the use of the ointment, and I did so the more readily as I found that I was not singular in my experience, a similar accident, about the time my cases were under treatment, having been met with in the practice of Dr. Paterson of Tiverton, whose paper on the subject induced Professor Bennett himself to discard the application altogether. It then occurred to the latter observer, that as the benefits arising from

it might be due more to its allowing cicatrization to advance according to the modelling process, than to its action as an absorbent, a paste sufficiently coherent, and capable of excluding atmospheric air, might answer as well as the mercurial in effectually accomplishing the object desired. He therefore recommended, after some trials, one composed of three parts of the carbonate and one of the oxide of zinc, made into a proper consistence by means of olive oil; but of this also my experience corresponded in no degree with his, for in two cases in which I was led to employ it, though applied when the eruption was scanty and vesicular, it did not succeed at all as an abortive, the face, as the disease advanced, becoming closely studded with pustules of a full size, and attended in one with severe pain, and in the other with a large amount of swelling, which was, however, in the former, not at all considerable. Nor was cicatrization mitigated in any way whatever, deep pits having formed on the nose and forehead, even before the dismissal of the patients, in one of whom, moreover, when seen four months afterwards, the scarring on the rest of the face was so marked as to force the suspicion that a different result did not ensue in the other. There was, therefore, no encouragement to pursue any farther this method of treatment, the inferiority of which to that by gutta percha must at first sight appear strange, when it is considered that both are intended, or supposed to operate on the same principle. But leaving out of view the so-called ectrotic power, it must be evident that a soft paste like this zinc composition will, before drying, be constantly exposed to removal by the bedclothes of the patient, both from his tossing about during sleep, and from the impossibility of keeping him always on his back, so that frequently the pustules over a large surface will be without any protection, and on that account very liable to rupture. The application, of course, can be easily renewed, but still mischief is done in the interval by the free admission of air, which, under the gutta percha, is effectually excluded by a single coating, except, as has been already shown, at the angles of the mouth, where, curiously enough, however, there is seldom much pitting, even when the eruption is presented in an aggravated form. It is extremely probable, besides, that the latter possesses another advantage over the former, in the moderate amount of support which it affords to the whole face; in consequence of which the cicatrices must be more neatly moulded than they would be if protected by a substance allowing the opposite margins of each pustule to separate freely from one another.

But, in addition to these modes of treatment, there is still another of recent introduction, with which also the gutta percha contrasts not less favourably. This was proposed by Dr. Crawford of Montreal, and consists in painting on, once or twice a-day, from the time the eruption appears till the pustules are fully maturated, a strong solution of iodine in alcohol, the benefits attending it being said to be prevention of the pitting, and, excepting the smart of application, relief to the local uneasiness. In regard to the latter of these, however, it was

found, in my hands, not to answer, for in the two cases in which I was induced to give it a trial, it caused a great amount of pain, which was *almost constant*, and not at all warranted by the ultimate result, the marking, in the one which terminated in recovery (the other having died eleven days after admission), being no better than that noticed even after the use of collodion. But independently of this, it labours under a serious drawback, in the necessity of its being employed immediately on the appearance of the eruption. This, it is plain, must confine its application to a comparatively small number of those afflicted with the disease, for it is well known that in the vast majority of instances admitted into hospitals, as well as in many occurring in private practice, the early stage is past before the patients come under treatment. With the gutta percha, however, such a condition is not required, the period most suitable for its use being, as has been already shown, that immediately before complete maturation, so that in very few cases will the opportunity be lost of affording them a safe, easy, and efficacious means of materially modifying future disfigurement.

From a review, then, of the foregoing observations, it may be concluded:—

1. That pitting cannot be *entirely prevented* by any of the applications to which reference has been made.
2. That by means of several of them, however, it can be *mitigated* to a very considerable extent.
3. That, with the exception of gutta percha they are attended with some disadvantages.
4. That the gutta percha, besides, is the most useful in accomplishing the desired effect. And
5. That, in order to its success, it should be painted on just before maturation is complete.—*Glasgow Med. Journal, July* 1855, *p.* 150.

105.—ON CARBUNCLE AND BOIL.

By James Syme, Esq., Professor of Clinical Surgery in the University of Edinburgh.

Carbuncle is a circumscribed inflammatory condition of the true skin. It begins with a small red point, which gradually and rapidly extends with a peculiar tingling and pungently-painful sensation much greater than might be expected from the degree of morbid change apparent to sight. The skin becomes loosened in its texture, and swollen, so as to be an inch or an inch and a half in thickness. Small yellow points appear on the surface, and are presented by a section of the dermoid texture, interspersed in the interstices of its substance. These local changes are attended with a more than corresponding amount of constitutional disturbance, the patient being unable to sleep or eat, having an anxious expression of countenance, and presenting all the characters of excessive irritation. If the evil be permitted to pursue

its course, it terminates in sloughing of the affected skin, and either death of the patient from exhaustion, or a very tedious recovery from the loss of substance which has been sustained. All sorts of internal remedies and local applications have little or no control over the progress of a carbuncle, and the only effectual method of cutting short its advance is to make a free crucial incision completely through the whole extent of inflamed skin. Immediately upon this being done, the redness disappears, and the pain ceases, the constitutional disturbance soon subsides, and the affected skin, unless already deprived of its vitality, quickly resumes its natural thickness and healthy action, so as to remove all obstacle from the healing process.

The patient now before you tells us that, about a fortnight ago, a small red speck, like the head of a pin, appeared on his back, and quickly extended, so that at the time of his admission, the day before yesterday, the circumference of inflamed skin was equal to that of a small plate. The affected surface was slightly elevated, and of a fiery-red colour, with yellow points interspersed. I made a free crucial incision through the thick and soft integument, which was studded with numerous yellow points, similar to those on the surface, placed pieces of lint between the cut edges, desired that a poultice should be placed over them, and restricted the diet to milk with farinaceous food. You now see that all the carbuncular characters have disappeared, and the patient says that he "has been mending every hour" since the incisions were made.

Reason and experience being so decidedly in favour of the practice here employed, I should consider it unnecessary to say a word now upon the subject were I not aware that the most erroneous ideas in regard to the pathology, as well as treatment of the disease, are extensively diffused; and as my duty is not merely to inculcate what seem to me sound principles of practice, but to counteract and extirpate the misleading notions which you may have elsewhere acquired, I deem it necessary to warn you against the four following errors, which are very generally entertained, and which may, perhaps, in some measure, account for the large numbers of deaths connected with carbuncle in some bills of mortality.

In the first place I beg to remind you that the disease is not subcutaneous, but seated in the skin itself. Secondly, that the object of incisions is not to allow room for the escape of matters confined under the skin, but to extinguish the inflammatory action, through discharge of blood and the relief of tension, by dividing the texture in which it is seated. Thirdly, that the application of caustic is the extreme of absurdity, since it directly insures what the great object of treatment should be to prevent, and by destroying the skin affected, instead of restoring it to a healthy condition, necessarily protracts recovery, and renders it less perfect. Fourthly and lastly, I beg to warn you against giving the patient wine and nourishing food, or employing local applications of a stimulating kind, so long as the inflam-

matory tendency continues in operation. The rapid progress which the poor starved creature you have just seen is making on the spoon diet must satisfy you that the weakest condition does not then require support, while the disease, so far from being limited to an impoverished state of the system is more frequently met with in persons suffering from repletion. In both of these conditions the disease depends upon a peculiar morbid tendency, and so long as it continues, the effect of stimulants will certainly be to aggravate the evil.

It may here not be out of place to say a few words in regard to Boils, which are very nearly connected with carbuncle. Like it they are seated in the skin, begin by points so small as to be hardly perceptible, and extend from the centre in a circumscribed form, with local and constitutional symptoms of disturbance greatly disproportioned to their extent. They are distinguished by being restricted to a smaller size, by presenting a more convex surface, and by tending to suppuration rather than to sloughing. It is true that they contain a white substance, named their core, which looks like, and is often mistaken for merely dead cellular substance, but is chiefly the result of a morbid deposition. Fomentation and poultices may soothe the uneasy symptoms proceeding from boils, but the only effectual mode of checking their progress is to make a free crucial incision through the whole extent of inflamed skin which constitutes their base. It is often said that "opening" boils does no good, and this may be true, since the incision, like that for the remedy of carbuncle, must be directed, not with a view to evacuation, but to free division of the affected skin. The opinion generally entertained at present, is, that boils should be allowed to pursue their course, under palliatives, with a liberal diet, and patients are frequently met with who have suffered for months, or even years, from their successive formation. Now it seems to me that nothing can be more injudicious than such a procedure, since each boil, instead of being extinguished by a timely incision in its infancy is allowed to go through the whole of its irritating course with attendant constitutional disturbance, which instead of benefiting the patient's system must increase its derangement and liability to similar formations. Between two and three weeks ago a medical gentleman of great respectability in this city called upon me, complaining of a boil on his arm, which he had been poulticing, and did not wish to remedy by incision. Two days afterwards I was asked to visit this gentleman, found him in bed, and was told that he had been deprived of sleep throughout the preceding night by a large boil on his haunch, which if allowed to pursue its course, threatened to produce a great amount of distress, and seriously to disturb his health. Having been requested to do what seemed best, I made a free crucial incision, and restricted the diet to milk with farinaceous food. Next day I found the patient down stairs, sitting in his library perfectly comfortable, as he had been ever since submitting to the incision. I have no doubt that if the system at present in fashion had been pursued in this case,

my friend, instead of enjoying perfect health, would now have been fairly entered upon a course of annoyance no less distressing than unlimited in its duration.—*Lancet, March* 8, 1856, *p.* 269.

106.—*New Method of Treating Phagedæna.*—Mr. Cock has recently been trying in Guy's Hospital, a plan of treating phagedænic ulcers by constant irrigation. The method is, to have the sore well exposed, and the affected limb placed on some waterproof material; a reservoir above the bed is then filled with lukewarm water, and, by means of an elastic tube, a stream is kept continually flowing over the surface of the sore. By this means all particles of discharge, &c. are washed away as soon as formed, and the ulcer assumes the clean, pale appearance of a piece of meat which has been long soaked. In all cases in which it has been practicable to employ the irrigation efficiently, a speedy arrest of morbid action has been secured, and the number has included several in which the disease was extensive and severe. The theory of the treatment is, that phagedænic action is a process of local contagion—the *materies morbi* by which the ulcer spreads, being its own pus. Admitting this supposition—which there is every reason for doing—to be true, the object to be kept in view in curative measures is either to decompose or to remove the local virus. This end is accomplished somewhat clumsily by such remedies as the nitric acid, which, unless so freely used as not only to char up all the fluid matters, but to destroy the whole surface of the ulcer to some depth, fail to prevent a recurrence. Mr. Cock's plan of subjecting the ulcer to a perpetual washing, attempts the accomplishment of the same end by a more simple and direct method. It involves no pain to the patient, and does not destroy any healthy tissues. Its one disadvantage seems to be, that, excepting on the extremities, its use would be attended with some inconvenience, from the difficulty of preventing the water from running into the patient's bed. Should, however, further trials confirm the very favourable opinion which has been formed at Guy's Hospital as to its value, these difficulties might no doubt, be surmounted by the contrivance of suitable apparatus. The directions as to the temperature of the water are, that it should be as warm as comfortable to the feelings of the patient; and, as preventive of smell, Mr. Cock advises the addition of a small quantity of the chloride of lime or of soda.—*Med. Times and Gazette, April* 12, 1856, *p.* 362.

107.—*Rapid Treatment of Itch.*—The remedy here mentioned is the chloride of sulphur dissolved in sulphuret of carbon. The chloride, easily obtained by the action of chlorine on sulphur, was at first employed in its pure state in minute quantities, but this not acting promptly enough, the sulphuret of carbon was, after various trials,

chosen as the best vehicle. Twelve grammes of chloride are dissolved in 100 of the sulphuret, this being the utmost quantity required for an adult. The application should be made in a well-ventilated room, removing all copper articles liable to tarnish. The patient is placed quite naked on a stool, and his head is covered with an immense cone made of strong paper, opened only at top, so as to protect the face from the effect of the sulphureous vapours which exhale. The whole surface is rapidly smeared over with the mixture, by means of a large badger's-hair-brush or charpie, applying it especially to the parts where the acari most resort. Any hospital attendant can do this. A general sense of heat, without painful smarting, immediately follows, and the patient is thus cured in five minutes. The itching ceases as if by magic. After thirty-six hours a bath is taken, the patient being recommended to abstain from washing his hands and neck until then; and baths on alternate days for a week, to complete the treatment. Complications that may have arisen may, however, require treatment; but they soon subside. When eczema predominates, some gelatinous or starchy baths are employed, and porrigo is usually relieved by alkaline baths. When the complications are very aggravated, they should be somewhat modified before the treatment is commenced, or this may cause pain. After disappearing, the itching may return in five or six days, but is of a different kind, dependent on persistent porrigo, and relievable by alkaline baths.—M.M. Dusard and Pillon, in 'L'Union Mèd. 1855. No. CIX.—*Med. Times and Gazette, April*, 12, 1856, *p.* 368.

108.—ON WOUNDS OF THE SCALP—CONTUSION OF THE BONES.

By Prescott Hewett, Esq., Prof. of Anatomy and Surgery to the Royal College of Surgeons.

[Severe cases of this kind, where the scalp is extensively separated and the bone denuded, sometimes run a very rapid course to a fatal termination; but whenever this does occur, it is much more owing to the contusion of the bone than the denudation.]

In the flat bone of the skull, with its compact tables and intervening cancellous tissue, the contusion seldom reveals itself on the surface; it is in the diploë that the blow produces its effects. Examined as to its compact tables, such a bone, externally, may be to all appearance perfectly healthy; but the contusion manifests itself in the diploë by an extravasation of blood within its cells, or a breaking-down of the delicate fibres of their walls. In such a condition, the bone has hidden within itself all the seeds of the future mischief. If inflammation should arise in the bone—and arise, in all probability it will, if the diploë has been much injured; and the great tendency will be, in

certain habits of body, to produce suppurative inflammation, and suppuration in such a situation is fraught with the utmost danger.

The intimate connexion of the bone to the membranes of the brain; the large and numerous venous channels in its cancellous tissue, render diffuse suppuration in the diploë not only one of the most formidable complaints the Surgeon can have to deal with, but one which but too often sets at nought all his resources.

Let us look to the train of evils which may arise in the membranes of the brain, after a contusion of the bone, followed by mischief in the diploë.

For days, for weeks even, there may be no appearance whatsoever of the mischief which is smouldering. Soon recovering from the effects of the accident, if it was a slight one, the patient appears to be in perfect health. For a time, all wears a favourable aspect; but generally, within a fortnight or three weeks, the first symptoms begin to show themselves:—pain in the head, feverishness, and soon an unhealthy aspect in the wound, if there be one; a spontaneous secession of the periosteum from the bone, which, if denuded, becomes dry, and may be seen gradually to lose its natural colour, being first of a dead white, then of an opaque yellow, a greenish, or it may be of a brownish hue. Matters go on thus for a longer or shorter period, that is, as long as the inflammation does not spread to the inner table of the bone; but, as soon as this is reached, the dura-mater becomes involved; inflamed in its turn, and it may be, in a sloughly state, this membrane secedes from the bone, lymph or pus is poured out on its external surface, and as long as the inflammation is limited to the dura-mater itself, generally only that portion of the membrane corresponding exactly to the inflamed bone is diseased; but when the inflammation has once passed on to the parietal arachnoid, matter is thrown out into the cavity of this membrane, and then the visceral arachnoid, the piamater, and the brain itself, soon present all the appearances of severe inflammatory action. The symptoms are in keeping with the progressive stages of the disease. As long as the inflammation is confined to the bone they are few, and not strongly marked; but so soon as the dura-mater is reached, then decided symptoms of the cerebral mischief soon manifest themselves; increased feverishness, repeated rigors, intense pain in the head, sickness, drowsiness, occasional wandering, coma, and sometimes paralysis.

Such cases as these strongly resemble those which, of late years, have so much occupied the attention of the Profession. I allude to the diseases of the ear, where the bone is affected, and where the inflammation manifestly spreads from the bone to the membranes of the brain. In these cases the disease may lie smouldering for years. I have known it do so for upwards of twenty; and as long as the mischief is confined to the bone, the symptoms are trifling ones; but suddenly, without any apparent cause, it spreads to the dura-mater, and then follows the train of cerebral symptoms.

[Mischief so insidious in its course, and so constantly and rapidly fatal, when once fully developed, naturally led surgeons to bleed largely and repeatedly as a preventive: but we may fairly question whether we ought to bleed patients without a symptom of serious disease. We are told to do so to prevent inflammation of the dura-mater, but it is only one case in seventy where we find mischief in the dura-mater after death. As a general rule, blood ought never to be drawn without a clear indication of its necessity. In the majority of cases of severe wounds and contusions, patients recover, if kept perfectly quiet, and with an occasional saline purgative; but whenever inflammatory symptoms begin to make their appearance, then is the time to have recourse to antiphlogistic treatment, which must be more or less strict according to the nature of the case.]

Acute inflammation of the dura-mater, unless caused by the state of the bone, is rarely seen in our dead-houses, after an injury of the head. Acute inflammation, on the other hand, is not uncommonly met with in the sub-arachnoid tissues after an injury of this kind.

When acute inflammation of the dura-mater does exist, however, it is generally, from my own experience I might say constantly, accompanied, even in its earliest stage, by inflammatory exudation within the arachnoid. But inflammation of the sub-arachnoid tissues seldom gives rise to similar appearances; the inflammatory exudations are, for the most part, confined to the structures in which they originate, and only make their appearance on the free surface of the arachnoid when the inflammation is very intense.

Failing in all our antiphlogistic remedies, have we any other means of relieving the patient? The only chance left is in the trephine. But are we to trephine all cases of blows on the head, with bare bone and symptoms of suppuration?

A close examination of cases, under such circumstances, will show that, in many instances, we really have no indications which could lead us to apply the trephine. Throughout their whole course, there is, in these cases, not a single sign which could lead us to suppose that mischief is occurring between the bone and the dura-mater, and the only symptoms present from beginning to end, are those of diffuse suppuration of the membranes. The dura-mater may be inflamed, separated from the bone, and in a sloughy state; nay more, if the wound is in the parietal region there may be suppuration diffusing itself extensively along the branches of the middle meningeal artery, and yet, we may have no evidence whatsoever to prove that all this mischief exists.

[But the dura-mater, when laid bare by the trephine, is so often found to be perfectly healthy, that its use has of late years been abandoned, although the symptoms of suppuration may have been very evident.]—*Med. Times and Gazette, Oct.* 13, 1855, *p.* 361.

109.—*On Wounds of the Scalp.* By F. C. Skey, Esq., F.R.S.—Whether such wounds have been treated by plaster or by suture, erysipelas has too commonly followed on about the third or fourth day, extending more or less generally over the entire head and face. In the course of last winter I delivered a clinical lecture on these cases, advocating their treatment by means of quinine in full doses. I am fully confirmed in my opinion of the efficacy of this mode of meeting the difficulty by the enlarged experience of the last six or nine months, which has brought under my notice at least a dozen cases, additional to those I had previously treated on the tonic principle. The opposite treatment of such cases of traumatic erysipelas, by means of salines and aperients, may be equally efficacious for anything I can assert to the contrary. If it be equally efficacious, it is somewhat curious that the treatment by quinine, steel, and wine, does so little injury.—*Lancet, Jan.* 26, 1856, *p.* 87.

110.—*On Chronic Ulcers of the Legs.* By F. C. Skey, Esq., F.R.S.—Abundant have been the examples of treatment of chronic ulcers of the legs by means of the internal administration of opium. I know of no treatment at all comparable to this, so rapid, or so efficient. These cases have had many observers, who can bear testimony to its value. Exactly in proportion to the amount administered is the regeneration of the defective structure. Years will probably yet elapse before this principle will be universally acknowledged, before the medical community will admit that in opium we have an agent far more valuable than that derived from its *comparatively* worthless power as a sedative. It is notorious, that the chronic ulcer —the disease of ten or even of twenty years' duration—is unattended with pain. To suppose that opium effects its local marvels by any sedative property in the drug, appears to me worthy only the advocacy of a senile female, or of an uninstructed youth. If we administer five grains of the soap and opium pill, night and morning, to a man advancing in life, who has been carrying about with him for ten years a large, callous ulcer, with an ash-coloured base, surrounded by high walls of organized lymph, and in which there remains not a vestige of activity, good or bad, advancing or receding, the moisture from which is a hot ichor, becoming sanious under provocation,—if we examine carefully this surface at the expiration of forty-eight hours, we shall find it speckled with red points ; these are future granulations, and, in ten days, the whole of the base of the wound will be carpeted with them.—*Lancet, Jan.* 26, 1856, *p.* 88.

111.—HOSPITAL THERAPEUTICS.

In cutaneous diseases the utmost confusion exists as to the characters and infectiousness of eczema, for instance, as compared with porrigo. The latter is now cured by iodide of lead ointment and

alkaline lotions, with the internal use of iodide of arsenic; while, in eczema, the value of cod-liver oil is also beginning to be almost universally conceded. Dr. Addison, of Guy's Hospital, in opposition to more common opinions, believes that much of the obstinacy of eczema depends on its being infectious, though the dermatologists doubt this fact. Opium, as continued to be used by Mr. Skey very extensively in all kinds of indolent ulcers, especially those of the lower extremities, has lost none of its *prestige* in these cases. Creosote, made into pills, with liquorice powder, (the only mode it is said, of forming it into pill mass,) has also been found very valuable in various skin affections; especially those of the cancroid character. Turpentine also, applied externally.

In the case of a man suffering under the effects of several spreading sloughing ulcers on both thighs, the result of the artificial inoculation of syphilis matter at the Lock Hospital, Mr. Stanley directed the attention of his class, in November, to the peculiar character of these sores, and ordered the external application of the old "Friars' Balsam" (tinct. benzoin co.), which he said he had found the best of all the usual remedies for such affections. The man has been rapidly improving.

In a second case of syphilitic psoriasis, Mr. Stanley remarked to his pupils, that iodide of potassium and sarsaparilla would, in appearance, cure the disease for a time; but, as a matter of certainty and safety, he always preferred, where this affection was very well marked, to see it disappear under the effect of mercury; the patient was accordingly ordered the compound calomel pill, night and morning, (Plummer's pill,) and if it affected the mouth so much the better, though the action on the mouth is not necessary, if the sores begin to heal without this change; salivation being only one effect of mercury, the healing of the sores another, but one more essential.

Oxide of zinc, as the best medicine in chorea, and oxide of silver or oxide of zinc, in some forms of epilepsy, have been extensively tested in numerous cases in all the hospitals; oxide of zinc especially, by Dr. Hughes, as noted at Guy's Hospital, in more than 200 cases. A syrup of iodide of zinc, as ordered by Dr. Barlow, at Guy's, is perhaps the most agreeable form of the medicine. We have observed both Dr. Todd and Dr. Addison recently dwelling, in clinical remarks, on the necessity of not mistaking hysteria for epilepsy, the chief difference being, that in the latter the loss of consciousness is extreme, but not so in hysteria. In all else, however, the two diseases are apparently the same, and are very often mistaken the one for the other. We have "half a thousand shades of epilepsy," according to the latter physician; while Dr. Todd has found cases of "incurable epilepsy" which resisted oxide of silver to be, on further examination, hysteria. All these cases agree in leaving little or no organic lesion by which they might be localised. Chorea is most common, in all the cases seen at hospital, between the age of nine and fifteen, and is most fre-

quent in females. The upper extremities are more affected than the lower, thus pointing to emotional and reflex influences.

The physiology of sugar in the system has recently undergone so many changes, that diabetic sugar in the urine in patients attracts unusual attention. A case of this kind has been under the care of Dr. Bence Jones, at St. George's Hospital, for some weeks; and as this physician shows his class, week by week, the changes in the amount of sugar, resulting from changes in animal and vegetable diet, treatment, &c., and explains the copper and other tests for glucose, such patients possess no unusual interest for students. Diabetic sugar is never generated from milk sugar, though it need scarcely be remarked it is quickly formed from other products very nearly allied, such as albumen, starch, or vegetable sugar. Diabetes is more under the control of regimen than medicine. Milk is a very proper diet for diabetic patients. Dr. Bence Jones observed in this case, though milk abounds in sugar, some physicians, since the researches of Bernard and Lehmann, seem inclined to look on the disease as not so much a new formation of sugar as an accumulation of that always forming in the normal state, and in some way obstructed in its exit, like urea or bile detained in the system. Dr. Pavy, of Guy's Hospital, believes he has found that diabetic surgery is a specific form, different from other modifications of glucose. It seems very well established, that the sugar of the liver is formed from the albuminous products of the blood of the portal vein; and still more recently it has been observed that fibrin and hæmatin, disappearing, also, in the liver, whether as the result of tuberculous or inflammatory crases of the constitution, may give rise to sugar. Some other recent researches would point to diabetes as a peculiar form of nervous disease, rather than a renal or hepatic affection, the kidneys only acting in a secondary point of view. In hospitals also, it is sometimes found that albumen and sugar alternate in the same urine, still further indicating a connexion between these two substances in the portal system. Amongst recent remedies, gluten bread has been much recommended, but fine bran bread is preferable. Maccaroni is also highly praised. Amongst medicines, citrate of ammonia and opiates are perhaps the best.

The very great usefulness of the liquor ammoniæ acetatis, in cases of Bright's disease of the kidneys, deserves to be more generally known than it is. We sometimes see this affection given up as beyond all cure; yet at Guy's Hospital, where the affection was first discovered, and since then has been most carefully studied, Dr. Addison has found the liquor ammoniæ acetatis, by acting on the skin and relieving the congested condition of the kidney, the best of all the remedies for this disease; diuretics at the same time to be strictly avoided, but not mercurials.

The use of setons, though almost exploded in diseases of the joints, is found to be very beneficial in the shape of thin single filaments of

gutta percha, or some other substance not permeable to pus, in chronic inflammations of the eye. In cases of obscure melancholia, a seton to the nucha sometimes acts also like a charm. Some extraordinary uses of iodine have been referred to in hospitals, but it requires greater courage, perhaps, than discretion to adopt them. A case, diagnosticated as hydatid cyst in the thorax, recently described by Vigla, was punctured, giving exit to hydatids, and the sac subsequently injected with iodine. The patient quite recovered several months after.

In more than one case of hydro-pericardium the fluid has been let out in French hospitals, and tincture of iodine injected with good effect. In a case of this kind, at St. Mary's Hospital, it was deemed a very dangerous experiment to puncture the pericardium at all, while the uses of iodine have been limited to injecting abscesses on the surface, ovarian cysts, and hydrocele, in all of which it seems to answer better than any other therapeutic agent. In a case of ovarian cyst at St. Mary's Hospital, where Mr. I. B. Brown followed up paracentesis of the cyst with tincture of iodine injection, more than a year since, the result has been very encouraging, as the woman continues in good health, the tumour having only refilled to a very insignificant extent. In a somewhat similar case, Dr. West, at St. Bartholomew's Hospital, remarked, that it was something gained during the year, that we had at length a remedy in these cases that did not effect positive mischief, and as such, iodine deserved very general confidence.—*Lancet, Dec.* 29, 1855, *p.* 625.

112.—*Astringent Lotion for Ulcers.*—A lotion, consisting of half a drachm of the tincture of catechu, to a pint of the decoction of oak bark, is a favourite one at the Aldersgate-street Dispensary, as an application to foul and indolent ulcers on the leg. Mr. Savory, the surgeon to that institution, finds it superior in efficiency to most other astringents. It is applied freely, a piece of lint being well soaked in it, and laid over the sore.—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 137.

113.—*Glycerine as a Dressing for Wounds,*—At the meeting of the Academy of Medicine in Paris, on October 25th, M. Demarquay made a communication on the surgical uses of glycerine.

Having under his care the patients of M. Denonvilliers in the hospital St. Louis, he found some whose wounds had been attacked by hospital gangrene, for the removal of which citric acid, nitric acid, and the actual cautery, were employed in vain. Glycerine was then tried; in twenty-four hours the wounds had assumed a healthy appearance, the fever diminished, and the patients rapidly recovered.

Struck by this circumstance, M. Demarquay determined to treat all wounds with glycerine, and the following result was obtained. All the wounds treated in this manner have a rose colour, and are so clean that there is no necessity for washing them, or removing with a spatula the coagulum of cerate and pus which usually renders the dressing of wounds so tedious and painful. The cloths which have been dipped in glycerine are removed with the greatest ease: still more, this substance modifies suppuration, as M. Demarquay ascertained from the observation of some cases which had previously been dressed with cerate. The granulations are small, and there is no necessity for applying caustic. The dressing is soft and comfortable to the patient, and cicatrisation is promoted. These results have been confirmed by M. Denonvilliers.

The mode of applying the glycerine is very simple. A piece of linen dipped in it is placed over the whole of the wound, and over this is applied a little charpie, a compress, and a bandage.

In relation to the above communication, which appeared in the "Gazette Médicale" for October 27th, and in the other French journals, M. Petel relates the following case in the "Gazette des Hopitaux" for November 10th.

A woman, aged 30, came under his care on account of ulcerative stomatitis. The disease had been present for a month; the gums were red, soft, and had partly receded from the teeth, and the mucous membrane of the mouth, near the molar teeth, was in a state of ulceration, which might almost be called phagedenic. The patient was able to take only liquids, and had not been able to sleep for a fortnight. M. Petel applied glycerine, and gave chlorate of potash internally. On the next night the patient slept well: in three days there was a marked improvement in the appearance of the ulcerated surface; and in nine days the patient was cured.

M. Dallas, chief surgeon of the *hospice* of Sisters of Charity at Odessa, states ("Gazette des Hopitaux, December 15th), that, since 1851, he has not only used glycerine in the dressing of wounds and in the treatment of various affections, but has caused it to become a popular remedy in some parts of Russia. He relates the following case:

A German farmer had his hands and feet frost-bitten five years ago, and the parts had remained swollen and painful. Some months ago he presented himself to M. Dallas with a deep gangrenous ulcer, occupying the whole of the back of the right hand. The patient could not bend his fingers. The patient was treated by baths and topical applications of glycerine. In ten days the black eschar fell off, and left a grey-looking wound, so large that all the fingers seemed detached: the pain, however, was less. The swelling gradually lessened, and the wound shewed a disposition to cicatrise. At the time when M. Dallas wrote, the patient had no pain, and could bend his finger with ease: there was nothing but a small wound left, which was cicatrising rapidly.—*Asso. Med. Journal, Jan.* 19, 1856, *p.* 49.

114.—*Cancerous Ulcers.* By JOHN VALENTINE, Esq.—In a case of cancerous ulcer, I find, after a variety of applications, the following lotion to answer extremely well:

℞. Plumb. acetat. ℈ij. ad ℥j.; creosoti ♏xl. ad ℥j.; aq. fluvial. ℥xij. M. Ft. lot.

The acetate of lead and the creosote form a uniform mixture, and there is no separation of the latter ingredient. A piece of lint soaked in the lotion, and applied to the ulcer twice or three times a-day, is my mode of applying it. The whole is covered by an oiled silk.—*Med. Times and Gazette, May* 3, 1856, *p.* 443.

115.—*On the Treatment of Chronic Sinuses by strong Nitric Acid.* By F. C. SKEY, Esq., F.R.S.—Whenever inflammation, or even redness, has attended them, the application has generally failed; but the large majority of these canals are not inflammatory, but chronic.

The mode of applying the escharotic is by means of a fine glass tube of length sufficient to reach the full extent of the sinus. At one end of the tube is a small glass bulb. The air is sufficiently exhausted by the hand, when warm, to draw up sufficient acid to fill the tube, and partly so, the bulb. The instrument, thus armed, is passed into the sinus, and the acid discharged, either by the hand, or by the aid of a lucifer match, while the tube is slowly withdrawn, pouring out its contents along the entire track. I have by such means succeeded in getting rid of several old sinues that have given me a good deal of trouble. The glass instrument I have described is not new to this operation. I am not the discoverer, but I can report favourably of its utility.—*Laacet, Jan.* 26, 1856, *p.* 88.

SYPHILITIC DISEASES.

116.—ON THE PLURALITY OF POISONS IN SYPHILITIC DISEASES.

By F. C. SKEY, Esq., F.R.S., Surgeon to St. Bartholomew's Hospital.

[Syphilis is among the more common diseases met with in every-day practice. There is, perhaps, no disease which is so critical in its nature, or which has been so much under surgical observation, and which is so little understood; for all practical purposes, we may divide syphilitic diseases in the best manner into three forms:—1st, common gonorrhœa; 2nd, simple ulceration, without induration; 3rd, ulceration with induration.]

The commonly received opinion, as regards primary sores, is, that a special or particular sore in a woman produces the same special or particular sore in the man. Now, I think this quite fallacious; but I

wish to go by clinical facts. You have all read—or if you have not, I advise you to read—Mr. Evans' little work on syphilis; he was in the army about 1815 or 1816. It is a most invaluable little *brochure*. He says that in France he saw 200 women (all the women "on the town," in fact) examined by the police, but not one was diseased; in fact, every woman "on the town" was obliged to be examined every month. Yet at that very time, in the same garrison, 150 of his soldiers, who could not but have received the disease from these very women, were in hospital with every variety of syphilitic malady. This, and some other analogous facts, made a great impression on him at the time: and the idea dawned on the mind also of Mr. Abernethy a little after. Now, I must tell you that Mr. Abernethy was an idolater of John Hunter, and John Hunter was the lion of those times. Mr. Abernethy wrote a book on the subject, but he "fought shy," as they would say, of a great truth lying in his road, in his abject veneration of Hunter!

Now, Mr. Abernethy tells us a case of the following kind. A gentleman, after intercourse, contracted a particular crop of sores; he had intercourse again and again: always the same sores; but his wife had no sores. Now, where did these sores come from? Then, you know the case of the Spanish dancer at Lisbon, who infected so many of the officers, yet was in excellent health herself. I may appear heterodox, but I believe that nineteen-twentieths of the sores in men are self-generated in their own constitution. All such cases as these, and dozens of others I could cite, corroborate that opinion. A medical student in this hospital, the son of a clergyman, living in a retired part of the country, came to me some years ago, complaining of most marked gonorrhœa, with ardor urinæ, &c. Now I regret these stories, but I take them only in their medical bearing. I do not wish you to imitate him. He had unexpectedly got the better of a farmer's daughter—in short, seduced her; she was perfectly healthy at the time—a pure virgin—for I examined her also. Now he had most terrible gonorrhœa with swelled testes, ardor urinæ, &c.; the whole thing arose from the young woman having been menstruating at the time. You should be always on your guard in giving opinions in private families in such cases as this. Do not forget them. Well, I was consulted, now some ten years ago, by another patient, in the upper walks of life, but of most dissipated habits. I am sorry to tell this case also, but it is highly instructive in a pathological point of view. He had first a simple excoriation, after a seduction of the same kind, which required little or nothing in the form of treatment; he went on very well for a few days, but suddenly he came with the parts in a state of high inflammation; that sore sloughed and sloughed again; he was covered from head to foot with eruption. Yet I know that his wife, and the woman who gave him this sore, were perfectly free from disease. He was now from under my care for some time, and got three courses of mercury for these phagedenic sores; but, at the end of five months, he came

back to me, when I learned what I now tell you. Now where did he get that poison? I believed then, and I am sure of it now, that he made it in his own system. The woman in each case—one, I am sorry to say, moved in one of the highest circles of our London society—afforded simply some menstruous or other secretion, a *tertium quid*, I would say, to the local abrasion first formed, and to something in the man's constitution, and then we had this singular chain of consequences. Mercury may have done harm also. You will meet every year in practice cases somewhat of this kind, so you should be prepared for them. I see them every day in private and in hospital practice. In fact. the 150 soldiers under Mr. Evans with bad chancres, and the 200 women of the town perfectly healthy, are now no longer a puzzle. I should rather feel astonished if all these men, on marching through this town, had got precisely the same disease.

Next, of the nature of syphilis in the female, we have yet to learn a great deal. It is true we have now speculum men, who localise ulcers for us about the female genital organs, At the west end of the town, we are told of these speculum performances on old and young; but all we need to say of them is, there is a great deal of fancy, a great deal of the speculum, and a great deal of money made, and that serves all purposes.

I would rather invite your attention to the question,—Why has a man a specific sore at all? Why should that fatal pimple or ulcer be formed on the glans, more than any other part of the body, if the disease be a poison in the blood? Mind, I do not deny that a woman with gonorrhœa may give gonorrhœa to a man. I have no facts to bear out that. I only contend for this position: that a woman *without* gonorrhœa, may do this mischief, and that many of the phenomena of syphilis are self-generated in the man, and about forty-nine in fifty only require local treatment, and no mercury.

Now I come to the doctrine of the plurality of poisons in syphilis, regarding which so much has been written. If I can show you a sore which almost invariably produces one set of secondary symptoms, and another sore another; if I can predicate vesicles, pustules, psoriasis, lepra, &c. (for there are six of them) from one primary sore; and if I can foretell only the last (lepra) from another; if I can show you a sore only ancillary to another, and a third state of things, in producing certain phenomena, you will say, surely we have here a plurality of poisons. Well, we have a plurality of poisons; but I believe it depends on the constitution of the man who is the subject of the primary sore rather than on a plurality of poisons in the women conveyed by direct infection. There is no mixing up of these different forms of syphilis. I believe with Mr. Carmichael, of Dublin, that there are secondary sores, pathognomic of the primary sores. We have at least three of these.

I come now to speak of Mr. Hunter, the great "lion" of our profession as regards this subject; a great lion, if you wish; but, in my

humble judgment, his book on the venereal disease has done an infinite deal of mischief, and yet it is a great book.

You are all, no doubt, familiar with the Hunterian chancre, of medical essays and journals; we need not describe that. Well, it is curious, Hunter never in his life described this chancre at all. You may search his book from cover to cover, and not find it. It is positively ridiculous, the absurdity and confusion reigning in the schools about this Hunterian chancre. What he speaks of—in rather a cursory way, too—is an excavated ulcer of the tonsil; and this excavated ulcer of the tonsil, some ingenious gentleman has placed on the penis, and it has been copied from one essayist to another. Did you ever see an excavated ulcer on the penis, with induration, cut out with a gouge, as it is said, and with hardened base? You may, perhaps, have come across it, but I must say I never did. Mr. Hunter also treated all his sores by mercury; now the discrepancy is this: How often do we see even indurated sores? It is a most rare occurrence; but as to Hunterian chancre, I would walk twenty miles to see one. I dont know any greater curiosity; in fact, I am led to the conviction that Evans and Carmichael are right, Hunter wrong; or there is another horn of the dilemma—that the disease has changed; but before you believe this, look for yourselves and do not mind what is said of Hunterian chancre.

Not long ago, a good old sound practitioner was going through St. Bartholomew's; he was aware of my heresies, but he stopped me up stairs (after going through all the wards) at one special case. "That I call a Hunterian chancre," he exclaimed. "The deuce you do," I replied. "Oh yes," he continued, looking very sapient, "mark the induration; we shall have the gougeing out by-and-bye." Well, I offered a bad sort of argument, perhaps, but I said, "I'll bet you any large sum at my command—like a halfcrown to a half-penny—that I'll cure that sore without mercury." I treated it without mercury, and cured it. Now, I would advise you not to mistake *thickening* for induration; the latter is as hard as cartilage; there is no chronic sore, in fact, that does not keep up a certain amount of thickening around it; but this is not "induration," the true ulcer with induration, occurring about two in one hundred of all sores, requires mercury: the ulcer with simple thickening requires no mercury. I cured the man without the mercury. I believe I never settled the halfpenny won by the bet.

Now, if we further subdivide our subject, I would say, next, there are at least, three different venereal sores. Mr. Hunter says mercury is the cure for all. Is mercury of no harm? In almost ninety-nine cases out of one hundred, I believe it is; and I am sure mercury is not a cure at all for some other sores. I just said there are three different varieties of ulcer, one, for want of a better name (a rose by any other name, you know, &c.) we may call with Evans, *venerola vulgaris*. You will meet this sore in your practice three times out of

four of all sores; here mercury is quite inadmissible. The second sore is the phagedenic sore; here mercury is positively injurious. The third variety of sore is the true syphilitic, dusky, cartilaginous patch, indurated, but without that gougeing or hollowing out, rendered classic in the elder libraries; mercury is necessary for this sore; but it only occurs in practice about once in every forty sores. You see, then, we have one sore three out of four times—mercury inadmissible; another sore something less than once in four times—mercury positively injurious; and a third sore once in forty times—mercury useful.

I had the pleasure of going round the hospital, some time back, with M. Ricord, of Paris. He quite and entirely coincided with my views, except that he gave four classes of sores. But the difference is scarcely worth dwelling upon. He is perhaps now one of our best authorities on the subject.

Let me say a few words now on mercury. I do not think mercury is an antidote to syphilis; it rather próduces a change in the constitution. *pro hác vice*, as one might say—a temporary change in the system, which renders the latter unfavourable to the spread or production of the syphilitic disease. I do not think it a good plan to "push mercury," as it is called, when it seems to have little or no effect; I should rather say, intermit the use of it. The system, you may be sure, has got satiated, as one might say, or blunted to its influence; or the sore does not want it. Do not push it, but stop it for a few days, after which a new action will have been set up by the cessation of the mineral; and you may resume it with far better chance of its making a proper impression. Mercury has a great deal to do with the prevalence of rheumatism of late years in old and young. One dosing of mercury, to salivation, you may rest satisfied, is enough, and often more than enough, for a syphilitic patient; for I have little doubt it will last him for every day of his natural life. That mercury, as laid down by John Hunter, is the remedy for all venereal sores, I do not at all believe; indeed, this maxim is to me only like other popular fallacies of later years, a mistake, or, in more recognised terms, as you will also find it to be, a "a mockery, a delusion, and a snare."—*Association Medical Journal, March* 15, 1856, *p.* 211.

117.—*Tincture of Iodine in Bubo.*—M. Joliclerc states, as the result of much observation, that tincture of iodine is the best application in bubo, preventing or dissipating fluctuation, and facilitating healing if the bubo be already open. He applies it by gentle friction, so as to avoid vesication.—*Med. Times and Gazette, Oct.* 13, 1855, *p.* 374.

118.—*Chlorate of Potash in Ptyalism.*—In two cases of severe salivation from mercury, recently under his care at the Metropolitan Free Hospital, Mr. Hutchinson has employed the chlorate of potash, administered internally. In each a rapid cure was effected. The first case was that of a prostitute, aged 19, who, suffering from primary syphilis, had been ordered five grains of blue pill, and a quarter of a grain of opium, twice a-day. After taking nine of these pills, profuse and most threatening ptyalism set in. The lips, cheeks, and gums, became much swollen, the breath was fœtid, and there were large ulcerated surfaces on the inside of both cheeks. She could not eat, and the pain kept her awake at night. The original sore had nearly healed. Fifteen grains of chlorate of potash, thrice daily, in an ounce of water, were ordered, no other treatment whatever being adopted. On the next day there was marked improvement; on the third day all fœtor had disappeared, and the ulcers were nearly healed; at the end of a week she could eat crusts, and the mouth was, in every respect, perfectly well. In the second case the disease was in a milder form, but the benefit was not less marked.—*Med. Times and Gazette, Nov.* 10, 1855, *p.* 471.

119.—ON THE MODERN TREATMENT OF GONORRHŒA IN PARIS AS COMPARED WITH THAT IN LONDON.

By William Acton, Esq., formerly Externe to the Lock Hospital of Paris. (From Notes lately taken in the French Hospitals.)

[Our knowledge of the causes, nature, and treatment of these diseases has now ceased to be empirical, since the attention of the profession has been drawn particularly to them.]

Amongst the out-patients M. Ricord employs cubebs in powder, which he gives in large doses, but in private practice he usually prescribes copaiba capsules, together with his favourite injection, consisting of ten grains of the subnitrate of bismuth to six ounces of water.

Private practice in London offers great opportunities for the treatment of this complaint, and I find when the acute inflammatory stage of gonorrhœa has passed, or before it has gained ground, few cases fail to be immediately benefited by taking capsules together with a lead injection. I still, however, continue to lay great stress on the necessity of showing patients how to employ an injection; but as I have, in my treatise on these complaints, dwelt at great length on this subject, it is superfluous to recapitulate my observations. The modern improvements consist in carefully investigating the cases that do not immediately improve under the treatment spoken of above. If the patient be desired to pass urine in a large test-glass, the urine will be

found to deposit, on cooling, more or less of a thick, tenacious, jelly-like mucus. In some cases this is easily shaken up, and mixes for a moment with the urine. In more severe cases the deposit is tenacious, or holds together at the bottom of the glass. In addition to these signs, which to the practical surgeon are of great importance, we not unfrequently find pain in passing urine, as well as a frequency in doing so. This pain is occasionally referred to the neck of the bladder, end of the penis, or may be felt in the perineum. In other instances the patient complains that there is a heaviness in the perineum, and some uneasiness along the spermatic cord. Pain, however, is not necessarily present. I am at the present moment attending a gentleman from the country, who had for three months been taking capsules and employing nitrate of silver injections without success. Suspecting the affection of the neck of the bladder, I requested him to pass urine, which, even before cooling, showed an appearance similar to what is often witnessed—viz.: at passing it is not clear; in a few minutes we notice a cloud suspended for the moment in the clear transparent fluid. As the fluid cools, this falls to the bottom, and in the instance cited formed a quivering, jelly-like body, with a little pus on the surface, which is readily mixed with the urine on slight motion: not so the mucus. In other instances, where there is less secretion from the bladder, the pus is entangled in the mucus, and we see it suspended in the jelly-like mass a little way from the bottom.

The occurrence of any of the symptoms alluded to above during the treatment of gonorrhœa, should induce a surgeon to test the urine, and examine it carefully; for, as a general rule, it would be well to lay aside injections and copaiba, as in this stage both are worse than useless. The complaint has become complicated by irritation of the neck of the bladder, or prostate, and unless timely treatment be employed, the patient will suffer from some subacute affection of the bladder, which it will be difficult to cure. Two faults, equally great, may be committed at this stage of the complaint; if feeble treatment be prescribed, the disease goes on unchecked; if nitrate of silver be employed, and active treatment put in force, acute symptoms set in, and the patient is liable to affections of the testicles, or great irritation of the bladder.

I am constantly meeting with instances in which (to a minor degree, it is true) gonorrhœa is allowed to run on, and the patient's stomach becomes enfeebled by large and long-continued doses of copaiba, without any amendment of the discharge. Let me advise the surgeon, in all such cases, to lay aside the oil, and examine the urine, when he will find it in the condition I speak of. Under these circumstances, copaiba appears to have no action whatever, whereas the turpentines have, particularly the extract of the spruce fir,—an infusion of the young shoots is to be preferred; but as in London we find a difficulty in procuring the tops of the branches, I now recommend in all such

cases the inspissated extract of the spruce fir, a substance introduced from Norway in small jars, for the purpose of making spruce beer, and which may be procured at most of the Italian warehouses. I formerly gave the spruce drink, but patients complained that it was not easily obtained, and was a flatulent remedy, so now I order it as follows :—

℞. Ess. abitis nigr. (spruce fir), inspiss. ʒij.; mag. carb. q. suff. M. ft. pil. xxx.; cap. i. vel ij., bis vel ter in die.

Under the influence of this remedy and opium suppositories the mucus in the urine ceases. As soon as this occurs, the spruce may be laid aside as well as the suppositories.

Formerly I was in the habit of prescribing opiate enemata ; but it is often difficult to induce patients to undertake their administration, and the suppository is preferred. In private practice, the young surgeon will find that the feelings of the patient may be studied as far as is compatible with reason ; and this reminds me of another hint, which may not be thrown away upon the novice who wishes to succeed. I allude to the vehicle in which the opium is conveyed. I was in the habit of using Spanish soap until complaints were made that it was difficult to introduce the suppository from the pill becoming soft. I therefore prescribe it now as follows, with the butter of the cacao-nut :—

℞. Pulv. opii. gr. i.; buty. cacaonis, gr. x. M. ft. suppositorium ; Hac nocte utend.

There are contrivances for passing soft suppositories ; but patients dislike them, and they are difficult to be manipulated, and I find if the pill is firm it can be readily passed up the anus.—*Lancet, Dec.* 22, 1856, *p.* 599.

120.—*Wood Oil a Substitute for Copaiba.*—Mr. D. Handbury has published in the 'Pharmaceutical Journal' for January, 1856, an interesting account of a liquid recently imported in considerable quantity from Moulmein in Burmah, and offered for sale in London as copaiba, but long known in India, where it is commonly sold in the bazaars, under the name of wood oil, or *Gurjun Balsam.* It is obtained from a tree of immense size, *Dipterocarpus turbinatus*, which is said to yield so much as forty gallons in a season, from incisions made in the stem ; the flow of the oil being accelerated by applying heat. Its appearance closely resembles copaiba, of unusually dark brown colour ; its consistence is somewhat greater than that of olive oil, sp. gr. ·964 ; its odour and taste, perhaps, hardly so strong as that of genuine balsam ; and it almost entirely dissolves in two parts of alcohol of sp. gr. ·796 ; but its most curious property is, that when heated in a corked phial to about 266 deg. F., it becomes slightly turbid, and so gelatinous that the phial may be inverted, even whilst hot,

without its contents being displaced; and on cooling, the solidification is still more complete. Gentle warmth and agitation restore to a great degree its fluidity, but solidification is again produced by reheating to 266 deg. Copaiba displays no such phenomena. With regard to its medical properties, there appears to be no doubt, from experiments made by Dr. O'Shaughnessy, and confirmed by other practitioners in India, that the oil is nearly equally efficient with copaiba, in the treatment of disease. It may be administered in emulsion or in pills, combined with magnesia. Dr. O'Shaughnessy has used the essential oil in doses of from ten to thirty drops.—*Dub. Hospital Gazette, Feb.* 1, 1856, *p.* 15.

MIDWIFERY,

AND THE DISEASES OF WOMEN.

121.—ON THE SOURCE OF THE MENSTRUAL DISCHARGE.

By Dr. W. Tyler Smith, Physician Accoucheur to St. Mary's Hospital.

[Divers opinions have been held respecting the exact source of the menstrual flow. It has been referred to the ovaries, the Fallopian tubes, the cavity of the body of the uterus, the os and cervix uteri, and the vagina. All the exact evidence we possess, however, points to the cavity of the body of the uterus as the true source of the discharge. The catamenia may often be seen escaping from the os uteri, in examinations with the speculum; and in cases of procidentia and inversion, the whole process may be watched, as the blood may be seen exuding from the surface of the organ. It may be twelve hours or more after the commencement of the flow before it appears externally, and likewise it may continue to flow externally after it has disappeared from the os uteri.]

Within the last two years I have had opportunites of examining three uteri taken from women who had died during the catamenial flow. In each of them I found the mucous membrane of the body of the uterus either in a state of dissolution or entirely wanting. In one case, that of a woman previously in good health, who died suddenly from a fit of apoplexy while menstruating, and whose uterus was kindly sent to me by Mr. Filliter, of the Marylebone Infirmary, the mucous membrane was altogether gone. At the upper part of the cervix uteri the break in the mucous membrane was very apparent. In the cervical canal the mucous membrane was perfect; but at the os uteri internum, it ceased as abruptly as though it had been dissected away with a knife above this point. Blood was oozing at numerous points from broken vessels in the sub-mucous tissue. I had the assistance of Dr. Handfield Jones in examining this uterus with the microscope, and we could find no traces of the epithelium or of the utricular glands. The surface of the cavity of the body of the uterus was exactly similar to that which may be seen after abortions, in which the decidua, or in other words the developed mucous membrane, has been discharged. The sub-mucous surface was a pulpy mass, in which epithelium, the ends of vessels, broken tubes, blood globules, and mucous corpuscles were all that could be distinguished. I com-

pared this uterus with that of a woman who had died after an abortion at the third month, and the appearances in the two cases were precisely similar.

The state of the uterine mucous membrane during menstruation has occupied many observers. It has generally been described as thicker and more swollen during the catamenia than at other times. It should be mentioned, however, that descriptions of the uterus a few days before or after the menstrual flow can have little bearing upon this subject, and it is a rare occurrence to get the uterus of a woman who has died in the middle of healthy menstruation. No safe conclusions can be drawn from the cases in which women suffering from severe disease have a sanguineous discharge from the uterus at the time of death. Professor Simpson, in 1846, in his paper on the expulsion of the entire mucous membrane in certain cases of Dysmenorrhœa, drew a comparison between ordinary menstruation and the process of digestion, in which the epithelial layer is shed and removed after every meal. M. Pouchet has supposed that a decidual membrane is formed during each catamenial period, and discharged in the shape of an albuminous plug ten or twelve days after the cessation of the flow. Kolliker states that the mucous membrane becomes thickened during menstruation, the blood escaping from the ruptured superficial capillaries, and that the epithelium of the cavity of the body is in great part thrown off; but he considers it as abnormal if the whole or part of the entire mucous membrane should be detached. Muller compares the change in the mucous membrane of the uterus during menstruation to moulting, attended, perhaps, by the formation of a new epithelium. A case recorded by Dr. Janser has been often quoted. It was that of a girl murdered four days after menstruation. He describes the mucous membrane as somewhat thickened, and easily lifted from the surface by the handle of the scalpel. It was composed of the utricular glands, arranged perpendicularly, side by side, and covered by cylinder epithelium. This observer concludes that during menstruation the mucous membrane of the uterus presents the same characters as in the early part of gestation. Such cases, however, really prove nothing with respect to the condition of the mucous membrane during the actual presence of menstruation. In an organ like the uterus, the most important changes may occur in the space of four or five days.

It appears to me to be in accordance with what I have observed in uteri examined during the menstrual period, the facts connected with membranous dysmenorrhœa, and the detachment of the decidua in abortion and parturition, to suppose that the mucous membrane is in great part or entirely broken up, and its *débris* discharged during each menstruation. The blood is probably exuded during the breaking up of the mucous structure, and the duration of the menstrual period represents the time occupied in this periodical decadence and renewal of the mucous membrane of the body of the uterus.

In cases of membranous dysmenorrhœa we have proof of the exfoliation of the mucous membrane in an entire form, or in detached pieces. This may occur every month for many years, a new mucous membrane being developed after each menstruation. After abortions and after parturition we know that the old mucous membrane is thrown off, and a new one formed. According to the view I have stated, a new mucous membrane is formed every month as part of the process of preparation for the reception of a fecundated ovum; not that the aptitude for the reception and implantation of the ovum is limited to the newly-formed mucous membrane, though it is probably greater at this time than at others. The mucous membrane may become the seat of the changes consequent upon impregnation just before a menstrual period, and in cases where menstruation is suspended. According to my view, the mucous membrane of the uterus become excrementitious every month, and is discharged from the cavity of the uterus in a state of disintegration, and the uterus forms a new mucous coat, by a process similar to the reproduction of lost parts.

Such a doctrine may at first sight appear startling, but we have always had a similar condition, during the menstrual period, under our eyes, in cases of vicarious menstruation. In these cases, an ulcer upon any part of the surface of the body may skin over, or assume healthy granulations, during the intervals of menstruation, but on the occurrence of the period, the newly-formed skin gives way, or the healthy granulations slough, and blood exudes from the surface for several days; after which, the ulcer heals, or puts on a healthy aspect, until the approach of the next catamenial period. I have at the present time a patient with a menstrual ulcer upon the dorsum of the tongue, in whom the sore heals partially or entirely between the periods, but at the catamenial dates the surface gives way, the sore becoming deepened, and exuding blood, while the catamenia are flowing. We have only to consider similar phenomena as occurring to the mucous membrane of the body of the uterus, and we have a reasonable explanation of the mode in which this peculiar function is performed.—*Lancet, Feb.* 2, 1856, *p.* 114.

122.—*On the Source of the Blood in Menstruation during Pregnancy.* By Dr. W. Tyler Smith, Physician-Accoucheur to St. Mary's Hospital.—The source of the blood in menstruation, or menorrhagia during pregnancy, has often been the subject of discussion. Before the modern views respecting the formation of the decidua, it was difficult or impossible to account for the occurrence of a discharge having a menstrual character from the gravid uterus. How could a sanguineous flow issue from the cavity of the uterus when the whole of the internal surface of the organ was occupied by the decidua? Obstetricians were driven to suppose that the discharge must in such cases be poured out from the cervix, the os uteri, or the vagina. In ac-

cordance with the modern ideas respecting the development of the mucous membrane of the uterus into the decidua vera, Dr. Matthews Duncan has suggested that the menstrual discharge may be secreted from the decidual lining of the gravid uterus in the early months, before the decidua reflexa comes to be in apposition with the decidua vera, in its whole extent. According to the view I have advanced respecting the loss and renovation of the mucous membrane at the menstrual periods, it is not difficult to conceive that in the first part of the pregnancy the lower portion of the decidua vera may become broken down and thrown off with a sanguineous discharge. Probably, in cases of threatened abortion, in which there is a coloured discharge for several days or a more considerable period, without the loss of the ovum, the lower portion of the decidua vera is destroyed and formed anew. In several cases which have occurred to me, of menstruation during pregnancy, I have, however, found them, on examining with the speculum, to be cases of abrasion of the os uteri. In the intervals between the periods the abrasions have secreted pus; but, under the influence of the vascular congestion which occurs at the menstrual dates throughout part or the whole of pregnancy, they exude blood after the manner of a menstrual ulcer. I met in the course of last year, with two cases of this kind.—*Lancet, March* 8, 1856, *p.* 251.

123.—ON A NEW TRIVALVE SPECULUM.

By Samuel A. Lane, Esq.

A medical friend and former pupil consulted me respecting a ragged and ill-conditioned ulceration situated within the rectum, about an inch from the verge of the anus; it extended from this point upwards about an inch and a half, having a breadth at its widest part of three-quarters of an inch. I was desirous of destroying the unhealthy surface of the ulcer by the local application of nitric acid, but found the specula in ordinary use so ill adapted to bring the entire ulcer into view, and to allow of the necessary manipulation, that I applied to Mr. Blaise, of the firm of Philp, Whicker, and Blaise, to construct me an instrument for the purpose. The desiderata in the speculum I required, were, facility of introduction, extensive dilating power within the rectum, associated with as little bulk as possible opposite the grasp of the sphincter; sufficient space at the orifice to introduce the finger, and to apply instruments; simplicity of construction, so as to admit of the speculum being readily used with one hand, while the acid was applied with the other. Mr. Salmon's conical tubular speculum failed to expose the whole of the ulcer, and to give sufficient room for the use of instruments. The three-bladed speculum ani, in which the blades are made to separate from each other in parallel lines by means of a screw. of course dilated the sphincter as much as the interior of the gut, and gave too much pain before sufficient dilatation of

the interior of the rectum could be obtained. A small Ricord's bivalve speculum fulfilled some of the requisites sufficiently well, but the mucous membrane fell between the blades to such an extent as to give a very imperfect view of the ulcer, and to render it impossible to use topical applications with any precision; a third blade would have obviated this. Mr. Blaise was accordingly requested to construct an instrument with three divergent blades, on the principle of M. Ricord's bivalve speculum, opening in the same simple way by pressure on the handle, but acting on three blades instead of two.

The accompanying woodcuts will sufficiently explain the construction of the instrument. It consists of three blades, closed by springs, and opened by pressure on the handles. The handles form an obtuse angle with the blades, so as not to obstruct the view, or interfere with the introduction of instruments. The third blade is attached to the body of the instrument by a hinge, and is kept approximated to the

Fig. 1.

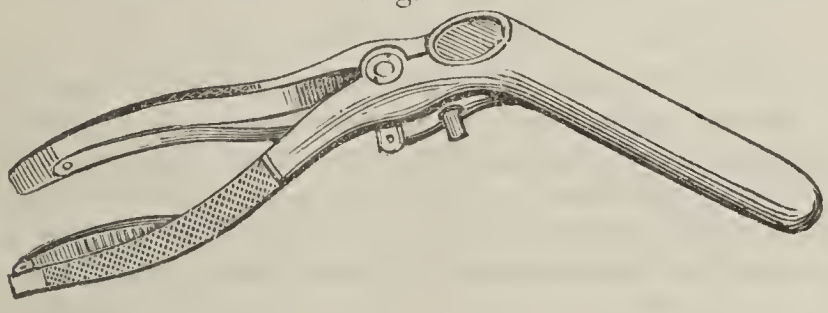
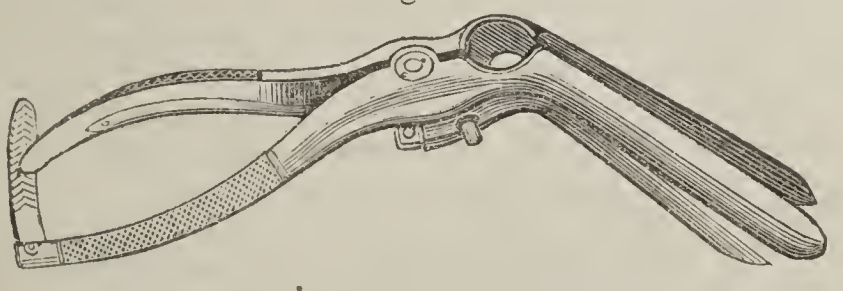


Fig. 1 represents a profile view of the instrument in its closed state. It shows well the angle formed by the handle and blades.

Fig. 2.



In Fig. 2 the instrument is also seen in profile, and about half open. A rack is represented at the extremities of the handles, by means of which the instrument is kept open to the extent required.

Fig. 3.

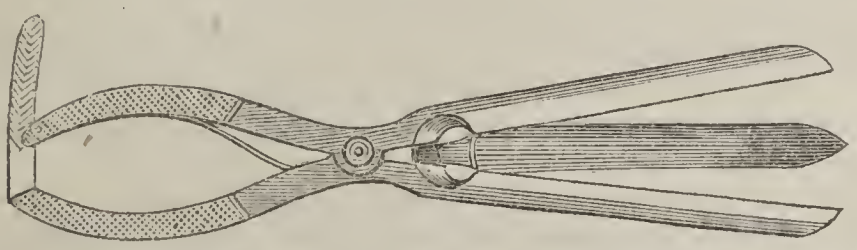


Fig. 3 shows a front view of the instrument fully opened and kept so by the rack.

other blades by means of a slight spring; it is made to open by two projecting levers, or pegs, connected with the handles. The blades, as they open, diverge from each other, moving extensively at their distal, but only slightly at their proximal extremities.

My own instrument is without the rack, and the edges of the upper two blades are bevelled off at their proximal extremities for about an inch, in order to give greater space for the introduction of instruments.

This speculum thoroughly answered my expectations, and I need hardly say, would be suitable for the examination of any passage, of which the interior cavity is much wider than the orifice leading to it, such as the rectum and vagina.—*Lancet, Dec.* 15, 1855, *p.* 575.

124.—ON INFLAMMATION OF THE OS AND CERVIX UTERI.

By Dr. Rigby.

[Besides arising from general unhealthy conditions of the system, it may be induced by causes of a mere local nature, as exposure, violent horse exercise, improper irritation of the part, but especially by the too frequent application of caustic to the os uteri, with such short intervals that the eschar produced by one application could not have healed before the next was made, and thus continued for such a length of time, as to produce the most serious mischief, both local and constitutional.]

This form of inflammation of the os and cervix presents features which distinguish it from the ordinary species I have been describing. It would, perhaps, be correct to call it a highly irritable condition of the uterus (which not only involves the ovaries, but frequently implicates the spinal cord to a serious extent,) were it not for the actual alteration of structure and permanent injury of the part which has suffered more immediately from this treatment.

The patient complains of constant pain in the uterine region, but generally more behind the symphysis pubis than is usually the case in ordinary inflammation of the cervix, extending from hip to hip, and in aggravated cases darting up the spine with neuralgic severity. It is increased by standing or by any exercise whatever. Sitting down upon a hard seat, or the passage down the rectum of solid fæces, produces great suffering, inasmuch as when once the pain is brought on, it will continue severely for some time after. The moment she assumes the erect posture she has a sensation of weight, bearing down, and burning heat in the pelvis, which are quickly followed by the pain itself.

The catamenial periods usually follow each other too quickly; are almost always very profuse, and invariably attended with great suffering. If the ovaries are involved, the symptoms of ovarian dysmen-

orrhœa will also be present. She has a constant ichorous watery discharge, which is sometimes very profuse. The bowels are unhealthy; the urine thick; the tongue pale, dry, and rough, with red papillæ; the face is sallow and wan; the spirits depressed; the pulse feeble and very irritable; and she has lost strength and flesh.

On examination, per vaginam, this canal is found soaked in the thin, watery discharge already mentioned. On gently touching the os and cervix uteri with the finger, the patient feels as if the parts were raw, from the aggravated sensibility which now exists in them; firmer pressure with the finger brings on the neuralgic pain already described. The os uteri is usually swollen, uneven, and knobby—it is frequently dragged forwards, or to one side, without any corresponding displacement of the organ itself. Whether this alteration of shape is owing to cicatrization in the part itself, and surrounding vagina; or whether it depends on different portions being affected with different degrees of induration, it is not easy to determine; at any rate the cervix usually has a strong degree of hardness, and the uterus above it feels large, hard, and very tender to the touch.

Seen through the speculum, the os uteri does not present the dark red tinge, more or less mottled with patches of a brighter colour, as in cases of ordinary inflammation, but it has a pale ashy hue much injected with vessels, just as is occasionally seen in the irritable throat and tonsils of an unhealthy person who has been suffering from repeated attacks of quinsy.

The discharge is evidently uterine, and is constantly oozing from the os uteri in considerable quantities. If the uterine sound be passed, it generally penetrates half an inch, or even a whole inch, beyond the usual distance, showing that the uterine cavity is enlarged; and intense pain is produced the instant it touches the internal surface of the uterus, indicating great irritability of that organ, and probably inflammation of its lining membrane.

The treatment of this affection will necessarily differ a good deal from the ordinary forms of inflammation of the os and cervix; the indications, it is true, will, to a certain extent, be the same, but the local as well as the general condition of the patient is very different. The inflammation of the os and cervix in these cases is seldom of such a nature as to require the application of leeches to the part itself, and the extreme irritation which they not unfrequently produce contra-indicates any local applications but those of a soothing character; while the enfeebled state of the patient's health renders any depletion very questionable.

The general treatment is by no means so simple or so easy as in the other case. The health has been so much deranged by the long-continued effects of severe uterine irritation, and the strength so broken down by frequent attacks of menorrhagia, and the profuse leucorrhœa

during the intervals, that it is difficult to adopt any distinct line of treatment at first starting, beyond the attempt to regulate the liver and bowels, by the mildest remedies, and soothe the irritable system by gentle sedatives.

A course of taraxacum, with decoct. sarzæ comp. and liq. calcis, is valuable in the early stage of treatment, as it obviates the necessity of mercurial alteratives, which are usually contra-indicated by the mucous irritation of the intestinal canal. It is of great importance to allay this condition as quickly as possible, not only because we thereby remove a fruitful source of uterine irritation, but because it also enables us to employ remedies which we could not otherwise do. When this has been arrested, we may generally pass at once to the use of mineral acids and tonics, and, if necessary, these will pave the way to a course of cod-liver oil. If the season of the year permit, a residence for some months at the sea-side will be most desirable. The patient should use sea-water in her morning ablutions, and if her health be sufficiently improved, and the weather warm enough, she may bathe in the sea with advantage.

The local treatment, as I have before stated, must be essentially of a soothing character. Liq. plumbi diacet. in decoct. papaveris forms one of the best injections where there is any amount of heat, swelling, or discharge; in other cases, the plain poppy decoction appears to be the only local application which will give relief. As it is desirable she should retain injections of this sort for fifteen or twenty minutes, she ought to lie upon her back, with her heels drawn up to the nates, and thus give the vagina such a direction, that the injection will remain in it as long as she preserves this position. The suppositories of diacetate of lead and extract of conium are also very valuable in these cases, and by being in a more concentrated form, and capable of being retained much longer, produce a much greater effect. The warm hip-bath is very useful, and with some patients appears to be the only thing which gives relief. If, however, the weather be mild, the sooner she can gradually come to the use of cold water the better; and she may always be looked upon as having made good progress when, during her residence at the sea-side, she is able to bear cold sponging with sea-water, and bathing in the open sea. For those who are able to enjoy these advantages, the salt towel which I have before recommended will be an excellent adjunct to the cold sponging. But it will be needless to enter into further details; they will vary more or less with every patient, or with the same patient at different times, and will be naturally suggested by the peculiar features, &c., of each case. The indications of treatment are to allay irritation and restore tone, but the treatment itself must necessarily be modified by the circumstances of each particular case.—*Med. Times and Gazette, Jan.* 26, 1856, *p.* 83.

125.—THE GRAVID UTERUS.

By Dr. W. Tyler Smith, Physician-Accoucheur to St. Mary's Hospital.

Formerly, everything was vague respecting the existence and arrangement of the muscular fibres of the uterus. The possession, even, of muscular fibres by the human uterus was argued because they could be seen in the lower animals, and because, from the functions of the uterus, they were necessarily believed to exist in this organ, rather than because they could be satisfactorily made out in dissections. In the magnificent plates of William Hunter, the external surface of the uterus presents no definite muscular arrangement. This great anatomist could find nothing but "irregularity and confusion," except upon the inner surface of the organ, where he observed the fasciculi to have in some degree the regular arrangement observed in other muscular structures. His description of the internal layer of muscular fibres is perfect even at the present day. He gives an account of the circular fasciculi surrounding the body of the uterus, and the two concentric circular plains of fibres which surround the orifices of the Fallopian tubes, and and gradually blend with the circular fibres of the body of the organ. William Hunter saw the analogy between these concentric rings—the orbiculares muscles, as he terms them, of the fundus uteri and Fallopian tubes, and the circular muscles found in the two horns of the uterus in animals possessing the uterus bicornua. His words are, "The better to conceive this arrangement of the internal muscular fibres, we may suppose each corner of the fundus uteri, where the tube is inserted, to be stretched or drawn out, so as to make two horns, or a bifid uterus, as in the quadruped; then, if we understand the inner fibres to be circular in every part of the uterus, we clearly understand how they will be circular in the human uterus upon its body, and likewise circular and concentric at each corner of the fundus." Before this time, Ruysch had described the fundus uterus as possessing a single circular muscle only. Sir Charles Bell carried our knowledge of this subject a step further, and described the muscular fibres diverging from the round ligaments to spread over the whole of the organ, and he considered these ligaments as in some respects the tendons of the external fibres of the uterus. His conclusion was, that the circular fibres prevailed towards the fundus, and that the longitudinal fibres were most apparent towards the os and cervix

According to the recent descriptions of Kolliker and other minute anatomists, who have combined the use of the scalpel and the microscope in their investigations, the gravid uterus possesses three layers of muscular fibres, all of them being of a paler colour than is found generally in other muscles. These three layers can be made out with tolerable distinctness, but not so clearly as we can make out the circular and longitudinal layers of the Fallopian tube or intestine. The internal stratum, or the inner layer of William Hunter, is thin,

and composed of delicate circular and transverse fibres, the circular fibres being found chiefly in the middle of the body of the uterus, around the Fallopian tubes, and at the os uteri, in which latter position they form an imperfect sphincter. The middle layer is thick and strong, consisting of flat bundles of fibres, running in different directions, interlacing with each other, and surrounding the vessels of the uterus. These bundles of fibres are more loosely arranged than those of the internal layer, giving the middle portion of the uterine parietes a spongy appearance. This stratum is strongest at the fundus uterus, where it seems to consist of several layers. The external layer consists of transverse and longitudinal fibres, forming a thin stratum, immediately beneath, and intimately connected with, the peritoneal covering of the uterus. The longitudinal fibres are arranged chiefly upon the anterior and posterior surfaces of the organ, and extend from the fundus to the lower part of the cervix. The transverse fibres of this layer surround, or nearly so, the organ, and fibres derived from it are continued, not only into the round liagaments, but into the broad and ovarian liagaments, so as, in effect, to connect the fibrous structure of the uterus with the fibrous stroma of the ovaria.

Sir Charles Bell pointed out a fact which has been confirmed by subsequent observers—namely, that in all parts of the uterus muscular fibres are found to surround the bloodvessels, and that this is especially the case with the open vessels upon the surface from which the placenta has been detached. William Hunter had observed that at the site of the placental attachment the inner layer of muscular fibres lost its regularity, and was found to be interlacing amongst the blood-vessels. The bearing of this arrangement upon the arrest of hemorrhage after the placenta has been detached is obvious. Sir Charles Bell found that when the muscular fibres were contracted the mouths of the vessels were closed, and *vice versâ*.—*Lancet, April* 19, 1856, *p.* 19.

126.—ON SOME DISORDERS OF PREGNANCY.

By Dr. W. Tyler Smith, Physician-Accoucheur to St. Mary's Hospital.

[Of the disorders depending upon sympathetic irritation, excessive nausea and vomiting are amongst the most troublesome to which the pregnant woman is liable. It may be bearable and only occasional, principally in the morning; or it may be very serious and constant, so much so, as to threaten the life of the patient by exhaustion, convulsions, or rupture of some blood-vessel.]

The first thing to be attended to, as regards treatment in the vomiting of pregnancy, is to attempt to get the secretions, particularly those of the stomach and bowels, in as healthy a state as possible. One of the most old-fashioned and serviceable remedies is the infusion

of calumba with soda. The calumba and soda, with from three to five drop doses of the dilute hydrocyanic acid, three times a-day, is a very useful combination. A grateful and sedative tonic is also made by giving citric acid with the calumba and soda, so as to form an effervescing draught. Cases are met with in which vomiting affords great relief, by getting rid of vicious gastric secretions, and contributing to restore the stomach to a healthy state; such patients should be puked occasionally with warm water, camomile tea, or a mustard emetic. In some patients, the stomach retains food after taking moderate doses of opium and morphia, and perhaps the solution of the bimeconate of morphia is one of the best forms in which an opiate can be given. Salicine, in doses of three to five grains, three times a-day, is a valuable medicine, which was first mentioned to me by a medical practitioner. It allays sickness, and promotes appetite and digestion. Kreasote, in one or two drop doses, made into pills, with crumbs of bread, is well known as an efficient remedy in this affection. Professor Simpson strongly recommends the salts of cerium, particularly the nitrate of cerium, in doses of one to two grains in water. Dr. Simpson has also used the vapour of laudanum as an inhalation with good effect. Where there is tenderness of the epigastrium, with fever, and an active state of the circulation, a few leeches may be applied to the pit of the stomach, or a small bleeding from the arm may be practised with good effect. Counter-irritation, in the shape of sinapisms, the turpentine stupe, or blistering, will sometimes afford great relief. In some cases, the stomach is soothed by the application of warm poultices sprinkled with laudanum, or a pledget of lint dipped in laudanum, the epigastrium having first been stimulated by a mustard plaster. The recumbent position, and perfect quiet, is of great use in the worst cases. It is sometimes necessary to treat not only the sickness, but also the Marasmus which is the result of excessive vomiting. A daily warm bath is a great comfort to such patients, and in cases of excessive prostration, gelatinous matter may be added to the bath, with a view to the endermic absorption of nutriment. Beef-tea injections, and the inunction of cod-liver oil, or sperm or salad oil, are very useful. I have seen a patient suffering from incessant vomiting, in a state of great anæmia, with œdema of the lower extremities from pure debility, kept up in the latter part of pregnancy mainly, as I believe, by the daily inunction of cod-liver oil over the abdominal surface. When all other means fail, and when the exhaustion of the patient cannot be arrested, the remedy, is the emptying of the uterus, and this should never be delayed so long as to put the patient in a state of imminent peril. Nature herself often terminates the distress by spontaneous abortion. It has happened to me to have been twice consulted within a recent period in cases in which the induction of premature labour artificially was so long delayed, that the patient died before abortion could be induced. Paul Dubois has stated that he met with twenty fatal cases in thirteen years. It is a reproach to our art that such cases should occur.

Anorexia, Indigestion, Heartburn, Gastralgia, and Variable Appetite, are caused in certain patients by the reflected irritation of the gravid uterus upon the stomach. Some women never feed so well as when they are pregnant, but in general, the appetite fails somewhat, and particular articles of food are regarded with aversion. A morbid desire for salted matters, acids, or alkalies, is not uncommon. Sometimes there is great loathing of every kind of food, or there is an extravagant desire to eat particular things, amounting to pica. These "longings," as they are termed, should be gratified as far as they reasonably can be. The common tendency of the appetite in pregnancy is to prefer fresh vegetables, fruits, and cooling drinks, and to avoid stimuli of all kinds. In this, the taste of pregnancy accords very well with its requirements. When the appetite is unnatural, the state of the bowels should be carefully regulated, and the patient kept as far as possible from taking things likely to be absolutely hurtful, as convulsions before and during labour are sometimes caused by the habit of indulging in improper and indigestible kinds of food. The remedies serviceable in excessive vomiting are also useful in the gastric disturbances now under consideration. Soda and magnesia are the best antacids in heartburn. In the neuralgic state of the stomach, which occasionally obtains, bismuth, hydrocyanic acid, kreasote, or an opiate plaster to the epigastrium, are useful. Sometimes small doses of acetic acid, or the mineral acids, will relieve the stomach in a remarkable manner; and when the neuralgia recurs at a particular hour of the day, it is generally relievable by quinine. In certain cases, uterine irritation excites the bowels to increased action, and tenesmus and diarrhœa are the results. In such cases, astringents should be given sparingly, unless the diarrhœa should be so considerable as to produce debility or lead to the risk of abortion. Care should, in the first instance, be taken to render the secretions as healthy as possible, and to avoid articles of diet likely to irritate the bowels. If necessary, the purging should be arrested by an opiate, with compound chalk mixture, bismuth, or gallic acid. When the diarrhœa depends, as it sometimes does, upon fæcal accumulation, or vicious secretions, a brisk purgative is the best remedy.

Facial Neuralgia from uterine irritation is a very common affection of pregnancy. It generally affects the dental nerves, particularly chose of the upper jaw. In many subjects, acute caries of the teeth tocurs; and in some childbearing women, a tooth or two is lost in each pregnancy. In neuralgia of the face, with or without disease of the teeth, a generous diet is called for, with wine and porter. Qunine and the lighter preparations of iron are very useful in such cases. Cold and damp, and residence near a river, or the neighbourhood of any large body of water, should be avoided as much as possible. Teeth ought only to be extracted with caution during pregnancy under such circumstances. The local application of chloroform, kreasote, camphorated spirit, nitric acid saturated with camphor, and other anodynes,

scarification, or the application of a leech to the gum, are the best means of alleviating pain.

A painful state of the Mammæ sometimes occurs during pregnancy, but seldom requires anything more than frictions, with an anodyne liniment or warm fomentations. Occasionally, however, acute Mammitis occurs from the irritation of pregnancy, requiring leeching and other active treatment. One of the most remarkable sympathetic disorders of pregnancy is the occurrence of goitre to a slight extent. The treatment of this enlargement of the thyroid is not of much avail during gestation, and the goitre generally disappears after parturition. Allied to this affection is the excessive Salivation which occasionally happens in pregnant women, leading to no serious results, and generally requiring no further treatment than the use of an astringent wash to the mouth.

We shall have presently to consider the œdematous states of the the lower extremities, depending upon pressure and debility ; but there is another form of dropsy incidental to pregnancy, affecting not only the limbs, but the cellular tissue of the body generally: this is the Œdema Gravidarum of the older authors. No other cause than pressure on the vessels was, I believe, known for such a state of things until Dr. Lever pointed out its connexion with albuminuria. Other observers have added to this valuable advance in pathology, and it is now a well recognised fact that pregnant women, especially primipara, are often the subjects of Albuminuria, resulting in local and general dropsy, and involving, unless relieved, very grave dangers at the time of parturition. Albuminuria was first pointed out by Dr. Lever and Professor Simpson in 1843, in connexion with puerpural convulsions, but since that date more attention has been paid to this condition at the time of labour than during its early stages in pregnancy. This is a misfortune, inasmuch as little can be done in such cases at the time of parturition, while, if detected early, the disorder can be relieved in the great majority of cases. It has been said that this disorder cannot be arrested during pregnancy ; but I have never met with a case that resisted treatment, unless it had been neglected until towards the close of gestation. The cause of albuminuria of pregnancy has been considered to be the pressure of the gravid uterus. It has been found that ligatures applied to the renal veins will produce albuminuria artificially. Its prevalence in first pregnancies, when the abdominal walls are more tense than in multipara ; in twin cases ; and in subjects affected with dropsy of the amnion ; and its rapid disappearance after labour, in most cases, seem to favour this view. Probably pressure on the kidneys is one cause of albuminuria ; but I have seen it occur in primiparous women of relaxed habits as early as the fourth or fifth month, where the abdominal walls were flaccid, and no apparent pressure or tension existed. The disease appears to me in such cases to depend upon sympathetic irritation of the kidneys by the gravid uterus, similar with the irritation of the salivary glands,

the mammæ, thyroid, &c., and not upon mere pressure. It certainly has not the same tendency to occur in ovarian dropsy; or in large fibrous tumours of the uterus, in which the pressure may be quite as great, and sometimes as rapidly induced, as in pregnancy According to the researches of M. Blot and Professor Litzman, albuminuria is not a very uncommon affection in pregnancy. M. Blot found it in about 20 per cent. of the women he examined, and Dr. Litzman in a somewhat larger proportion. It is found, as already stated, more frequently in primipara than in multipara. Probably when the albumen is small in quantity, no special symptoms result. When the amount of albumen is excessive, and the disorder has proceeded without check, we have the legs enormously swollen, and the vulva and vagina become so tumid as to render an examination very difficult. There is puffiness of the face and hands, œdema of the abdominal walls, and almost every part of the body pits deeply upon pressure. The patient complains of headache, and sometimes dimness of sight and amaurosis. Lumbar pain is frequently present, and there is general pyrexia. The urine is small in quantity, and nearly solidifies upon the application of heat and nitric acid. It is generally of high specific gravity, loaded with phosphates, frequently alkaline in character, and containing epithelium or fibrinous casts of the tubuli uriniferi. Besides the loss of albumen, urea is retained in the blood, and appears to have been detected in this fluid as such by Dr. Lever. Other observers have failed to find urea. According to the view of Frerichs and Litzman, urea becomes converted into ammonia, which has been found in the blood and in the secretions of the skin and lungs of albuminurious patients. As the poisoning of the circulation by urea and the loss of the albuminous portion of the blood proceeds, an intense degree of anæmia is induced. It is of great importance to relieve such a state of things before the coming on of labour, as albuminuria predisposes powerfully to convulsions and phrenitis, and, according to my experience, to dangerous hemorrhage during and after labour. The treatment consists in small bleedings where there is distinct lumbar pain and general febrile excitement, or cupping upon the loins, or counter-irritation by sinapisms in the same situation. Warm baths and vapour baths are often very useful in restoring the function of the skin, removing the effused fluid, and disposing the kidneys to act. I have also found the use of diuretics, as the acetate of potash, oil of juniper, and infusion of broom, most useful. Frerichs and Litzman have given benzoic and citric acids, with a view to remove the ammonia from the blood, and it is said with good effect. When there are no signs of renal inflammation or congestion, and the quantity of albumen has diminished, and that of the urine increased, a generous diet and the administration of iron and tonics should be resorted to, in order to repair, as far as possible, the weak condition of the blood which has been produced. The detection and treatment of albuminuria in pregnancy is one of the points of progress deserving the special

notice of all engaged in the practice of midwifery. I have no doubt the rate of obstetric mortality may be sensibly diminished by attention to this subject. The urine should invariably be tested for albumen in all cases of œdema of the extremities.

I am not aware that the matter has been observed by obstetric authors, but in some pregnant women the urine, without being albuminous, contains habitually a large quantity of triple phosphates, is of high specific gravity, and has an alkaline reaction during the greater part of pregnancy. The nervous and vascular erethism attendant upon, or produced by, the state of pregnancy, is followed by the same results as other and more marked causes of exhaustion. I have known this phosphatic diathesis to exist in cases in which fatty degeneration of the placenta has occurred in successive pregnancies. In one lady who had given birth to eight dead children at or near the full time, this state of the urine was very marked. The death of the children occurred before the end of gestation from placental disease, and was caused by the separation of the placenta before the occurrence of uterine action; or its attachment was so slight that it was separated by the first contractions of the uterus; or the children were born in such a weak condition that they died soon after birth, leaving the fœtus to die of asphyxia. The treatment in such cases should be that employed in the phosphatic diathesis occurring under other circumstances than pregnancy—namely, the mineral acids, opiates, rest, and a nutritious regimen. Such patients also require, either during or after the completion of pregnancy, preparations of steel, as a marked degree of anæmia is produced by the persistence of the disorder.

Some gravid women experience great distress during pregnancy from the sympathetic irritation of the heart, palpitation occurring upon the slightest exertion or emotional disturbance; in others, the respiration is similarly affected, and attacks of dyspnœa, approaching to asthma, harass the patient. These affections are aggravated as pregnancy proceeds; and the effects of mechanical pressure upon the heart and lungs by the ascent of the diaphragm, and upon the great vessels in the abmen, become added to those of sympathetic irritation. In such cases an opium or belladonna plaster over the heart, and the use of antispasmodics, such as sulphuric or chloric ether, valerian, musk, and similar remedies, are useful. Every means should also be taken to diminish, as far as possible, the effects of mechanical pressure. Cough is very troublesome in some cases. At the commencement of pregnancy, the cough may be spasmodic, and caused by sympathetic irritation of the throat and glottis; and, in the later months, by the upward pressure of the gravid uterus upon the diaphragm and lungs, a condition often accompanied by pleurodynia. In the former case, the cough is soothed by opiates and a good diet; in the latter, nothing can be done beyond obviating the effects of pressure as much as possible, by attention to the bowels, and the position of the patient. Such patients, for instance, require to sleep with their heads raised, and very

great comfort is often obtained by the use of small air pillows, which can be shifted about with ease by the patient.

Cephalagia and cerebral irritation are sometimes produced by the irritation of the gravid uterus. They are, however, more frequently the secondary result of some other disorder incident to pregnancy. Thus, headache occurs as a symptom of albuminuria, constipation, anæmia, indigestion, &c. When it is caused directly by the condition of the uterus, it should be relieved by cooling applications, as ice or a spirit lotion, to the head, and a few leeches to the temples, small blisters behind the ears, aperients, &c. When headache is only a symptom of some other condition arising out of pregnancy, the treatment must be modified according to the particular disorder upon which it depends—as, for instance, a purgative in constipation; quinine or iron in anæmia; in albuminuria, the treatment adapted for the relief of this condition, and so forth. Severe headache is a symptom which should always attract the attention of the accoucheur, since we know that it may be the possible forerunner of puerperal convulsions or mania. It occasionally happens that actual mania has been caused by the irritation of pregnancy, and apoplexy, epilepsy, and chorea have been met with. In these severe complications, the only efficient treatment consists in the artificial evacuation of the contents of the uterus.—*Lancet, March* 1, 1856, *p.* 221.

127.—TREATMENT OF ABORTION.

By Dr. W. Tyler Smith, Physician-Accoucheur to St. Mary's Hospital, London.

[The symptoms of abortion are frequent shiverings, irritable condition of the bladder, sanguinolent discharge, and pain. On being called to a case of supposed abortion, an examination should always be made if possible, and our first consideration must be whether or not the ovum can be preserved; all irritations of a reflex character should be removed. If there be much uterine plethora, leeches should be applied to the inside of the thighs, or the perinæum.]

When nervous excitement predominates, a full opiate is of great service. Opiates in full doses, are also especially called for when there is intermittent uterine pain, or the continued pain of the back and lower part of the body similar to painful menstruation. Dr. Fleetwood Churchill has given the cannabis Indica with good effect as an anodyne, and with a view to its restraining sanguineous discharge. In the earliest abortions, astringents are very valuable, the loss of blood in such cases very much resembling menorrhagia. The acetate of lead, in combination with opium, the mineral acids, the oxide of silver, alum, gallic acid, are the best remedies of this kind. If the discharge is profuse, iced drinks should be given. Otherwise, the beverages of the patient should be cool, without being absolutely cold, in order to

avoid uterine contraction. In the treatment of abortion, it must always be born in mind, that in diet and medicine any agents which excite contraction of the uterus may arrest hemorrhage for the moment, but with the danger of exciting further separation of the ovum. We must be careful, therefore, not to excite any powerful uterine action. The local application of cold to the vulva, and the introduction of sponge or pieces of lint, dipped in water, into the vagina, is very useful, within certain limits; but it must be remembered that excessive cold excites uterine contractions, and so, also, does the sponge or linen plug, if it should be large enough to irritate the vagina mechanically. Perhaps the most important of all the means at our disposal for the relief of abortion is rest in the horizontal position. The patient should be kept in bed in a cool apartment, lightly covered with clothes, as long as any coloured discharge continues, and for some days afterwards she should be kept upon a couch, and not allowed to assume the upright position or to walk. When the uterus is in the irritable and congested condition which accompanies abortion, the standing posture, or considerable movement of any kind, greatly adds to the probabilities of abortion. The mind of the patient should be kept as quite as possible, and all exciting or alarming intelligence withheld from her. The bowels should be kept open, if necessary, with the mildest laxatives. I prefer the senna confection, with a little bitartrate of potash, as an aperient. Castor oil, as I believe, irritates the uterus and mammæ, and should not be given. When the threatening of abortion has occurred at a catamenial date, every precaution should be taken, as the next monthly period comes round, in the way of avoiding irritation, and preserving quiet of body and mind. Every pregnant woman should be told to take note of the catamenial dates throughout pregnancy, and observe greater care than usual at these times, particularly if she has been the subject of abortion. The attempts to prevent abortion should be carried out perseveringly, as it sometimes happens that women suffer from the symptoms of abortion for a considerable time, slight sanguineous discharges lasting for weeks, and yet, with continual care, they go on till their full term. It sometimes happens that the bleeding is very profuse, and the os uteri so closed that the finger could not possibly be introduced into the uterus. All the more powerful astringents may have been tried in vain. In such cases the vagina must be plugged firmly with lint or sponge. This arrests the bleeding almost invariably, and tends to promote coagulation at the mouths of the bleeding vessels. If, however, it is necessary to continue the plugging for any length of time, the uterus becomes excited by the mechanical irritation, and throws off its contents. Sometimes the loss of blood is so great as to require the free administration of brandy, ammonia, and other stimulants. As abortions frequently spread over a considerable time, every care should be taken to support the strength of the patient. In abortions at the fourth or fifth month,

the hemorrhage may be so profuse and sudden as to be alarming from the first, This is particularly the case in abortions occurring about the time of the cessation of the catamenia. In such cases, if the hemorrhage cannot at once be arrested by astringents, cold, and the tampon, the membranes should be ruptured with a view to stop the hemorrhage, and to excite expulsive action of the uterus.

When an abortion is threatened, the accoucheur should order all the discharges to be saved for his examination. Every clot and every portion of solid matter should be carefully inspected. Otherwise it may happen that the patient or her nurse may tell you she has aborted when she has not done so, coagula having been mistaken for the ovum. Or it may occur that the ovum having passed unnoticed, and slight or profuse hemorrhage continuing, as it sometimes does, for a considerable time, the accoucheur is puzzled by expecting an abortion long after it has been accomplished. In connexion with these points, it must be borne in mind that cases occur in which the ovum appears to be dissolved, and slowly discharged with sanguineous matters, just as the decidua is discharged in the lochia after parturition. A delicate ovum of a few weeks may disappear within the uterus, as occurs in certain cases of molar gestation, and the membranes may be broken down and discharged as detritus. Either of these three cases may prove very embarrassing to the practitioner. Whatever care may be observed, cases will occasionally occur in which women who have passed two or three menstrual periods, and exhibited the signs of early pregnancy, will be seized with the symptoms of abortion, and suffer from a sanguineous discharge for a considerable time, without passing any detectible portions of an ovum. After this the patients may menstruate regularly, and it becomes exceedingly difficult, or impossible, to decide whether they have aborted or suffered from a temporary suppression only.

The indications which should make us abandon all hope or intention of saving the ovum are, sudden losses of blood to such an extent as to imperil the life of the mother, or such a continuous drain as seriously to endanger her health; it being also certain, or nearly so, that in such cases the ovum is diseased or already dead. If, on examination, we can feel the ovum at the os uteri, or in the cervix uteri within reach of the finger, we may be certain that its expulsion is only a question of time. As a rule, there is little hope of saving the ovum after the rupture of the membranes and the discharge of the liquor amnii. I have, however, seen at least one case in which gestation went on to the full term after the discharge of the liquor amnii at the fifth month. Fœtid discharges, particularly in early abortions, are a pretty sure sign of the death of the ovum.

When all expectation of saving the ovum has been abandoned, means must be taken to obtain its removal from the uterus. If the bag of the early ovum can be felt with the finger in the cervix uteri, it can generally, by careful manipulation, be separated from the

uterus, and got away by the finger alone. Sometimes it is necessary to introduce the hand into the vagina, in order to get the finger into the uterus; and if the hemorrhage is alarming, the case urgent, and the os uteri sufficiently dilated to admit the finger, there need be no hesitation in adopting this measure. I have never seen any ill effects arise from such an introduction of the hand and finger. When the os uteri is undilated, and the hemorrhage is great, Dr. Simpson recommends the introduction of one of his sponge pessaries, with a view to the mechanical dilatation of the os and cervix. The only precaution necessary in such cases, as in all instances in which sponge is used in the vagina, is not to allow the sponge to remain long enough to become fœtid. The ergot of rye and the cannabis Indica may be given for their oxytoxic effects in cases where it is thought unadvisable to remove the ovum, or portions of the ovum, mechanically. Galvanism has been suggested by Dr. Robert Barnes, and from what I have seen of its action in cases of intra-uterine polypi, I have no doubt it would contribute to expel an ovum in a difficult case of abortion. We may turn the reflex connexion between the rectum and the uterus to great account in the treatment of abortion when there is no hope of saving the ovum. A drastic cathartic enema will often complete the expulsion of an ovum in the most rapid manner. Various instruments have been proposed and recommended for the mechanical extraction of a partially-detached ovum. There is, however, no instrument equal to one or two fingers when they can be introduced. The last invention of this kind is an instrument proposed by Dr. Fleetwood Churchill, on the principle of the familiar apparatus for getting a cork from the inside of a bottle. In France, a small forceps, somewhat resembling the lithotomy forceps, is used for the same purpose. Dewees invented a wire crotchet for the extraction of the ovum. It must be said, however, that with all instrumental devices for the removal of the embryo, there is danger of injuring the uterus, and with the hand in the vagina, a case can hardly occur in which the embryo, membranes, or portions of the latter, when retained, cannot be detached and brought away by the finger. Time and patience is sometimes necessary for this manipulation, but I have never known it fail.

I have seen cases where it was necessary to give chloroform before introducing the hand. In a case I saw with Mr. Ballard, of a retained placenta in an abortion at the fifth or sixth month, no other means would have enabled us to extract the remains of the ovum. The ordinary modes of procuring its removal had been tried in vain. The patient was in such a state of frenzied excitement that any introduction of the hand would have been impossible while she remained conscious. The cord had broken, and the placenta had been retained thirty-six hours, and there was no choice but that of leaving the placenta or giving chloroform. There was no difficulty in introducing the hand, but the placenta had to be peeled from the surface of the

uterus. The dangers of retained placenta are well known, and in a case of difficulty I should not hesitate to advise the use of chloroform in similar cases.

The condition in which the ovum is expelled varies greatly in different cases. The most favourable way in which an early abortion can occur is where the detachment of the entire ovum takes place before the act of expulsion occurs. The perfect ovum is then expelled at once, and the uterus contracts without much hemorrhage. In other cases the membranes are ruptured, and the small fœtus comes out alone or enveloped in the ammion, or the membranes may be discharged piecemeal, leaving the ovum to escape afterwards. As a general rule, the membranes remain after the expulsion of the fœtus; and the earlier the abortion, the longer the membranes or placenta have a tendency to remain. This is probably owing to the extended adhesion of the ovum to the internal superfices of the uterus, and the feeble power of the uterut to contract on its contents. Sometimes the membranes of an early ovum will remain for weeks, but in such circumstances there is not the same tendency to decomposition and its dangers, as there is in the case of the placenta at the full term.

The mechanism of abortion varies considerably, according to the time between conception and the term of natural labour at which the accident happens. No doubt abortion may occur in cases where conception has taken place just before a period, when the motor act of expulsion would probably be limited to the Fallopian tubes, the ovum being carried out of the uterus with the menstrual discharge. In cases occurring in the early months, the canal of the cervix and the os uteri have to be dilated before the ovum can pass, and this process of dilatation occupies a considerable time, and frequently causes much suffering. When the dilatation has occurred, the ovum is expelled by the contractions of the imperfectly-developed uterus. The contractions of the uterus occur periodically, and are accompanied by periodical pains, as in labour at the full term. The nearer the time at which the abortion takes place is to the time of labour, the more closely do the pains and the motor action and mechanism resemble those of natural parturition. In abortions occurring after the formation of the placenta, the tendency, as regards the expulsion of the ovum, is to imitate labour at the full term. The cervix uteri is slowly dilated, the membranes ruptured, and the fœtus expelled, to be followed, at a longer or shorter interval, by the membranes and placenta. In the early months, the difficulty occurs, not in the passage of the fœtus through the pelvis, but in the dilatation of the undeveloped cervical canal. As gestation advances, and the cervix uteri becomes developed, the difficulty of passing through the cervix becomes diminished, while that of passing through the pelvis is increased. When the ovum is small, the contractions of the uterus are chiefly or solely concerned in its expulsion; but when it is large enough to distend the vagina, the abdominal and respiratory efforts are called into play.

Usually, an abortion is not attended by any great danger. Women recover rapidly from the loss of an ovum, and there is a remarkable aptitude for conception afterwards. They do, however, sometimes perish from loss of blood, convulsions, or rupture of the uterus. They are also liable to the dangerous and fatal affections which attend the puerperal state. Tetanus, resembling the traumatic disease in character, has been known to occur after miscarriage, and in rare cases blood has passed through the Fallopian tubes into the peritoneum, causing death by peritonitis. Abortion occurring from small-pox and scarlatina is especially dangerous to the mother. When women abort frequently, great damage is done to the general health; a profound anæmia is caused; and patients may die of secondary diseases arising out of the debility induced by the recurrent miscarriages. When the whole of the ovum has been expelled, it is rare to meet with any profuse post-partum hemorrhage. The uterus is at once so diminished in size as to prevent the risk of bleeding. It happens, however, that occasionally small portions of the membranes are left in utero, and are a source of irritation and bleeding for weeks after the loss of the ovum. When the entire ovum is extruded, or brought away completely in detached portions, the woman is at once in a state of ease. A discharge, generally similar to the lochia, continues for some days. As regards rest and other management, a patient, after a severe abortion, should be cared for in the same way as a woman who has been delivered at the full term—that is, she should be kept in bed, and ordered a light unstimulating diet, until she has regained her strength. The breasts are sometimes stiff and painful, but rarely give much trouble after an abortion.

We must take cognizance of diseased states of the placenta in the treatment and prevention of abortion. When the fœtus is threatened with death because the placenta cannot perform its nutritive and respiratory functions, we may, through the mother, act upon the placenta, and assist it in the performance of its functions. Dr. Power prescribed the inhalation of air containing an increased quantity of oxygen, or the use of medicines containing a large proportion of oxygen in a loose state of combination, as nitric acid, in cases where the child has been lost repeatedly in the latter months of pregnancy. Dr. Simpson states that he has found chlorate of potash useful in cases where the fœtal respiration is imperfect. Every care should be taken in such cases to keep the blood of the mother in a healthy state. It is evident that the sanitary condition of the fœtus must mainly depend on the condition of the arterial blood of the mother, this being the medium in which embryo respires. It has been recommended that, in cases of repeated peritonits or cerebral disease in the fœtuses of the same mother, mercurialization and other means should be employed with the view of reaching the ovum through the maternal circulation; but, in the present state of our knowledge, our means of diagnosis in diseases of the fœtus are too obscure to render therapeutics of much value. In

syphilis affecting the mother, or when the father is syphilitic, there can be no question of the propriety of mild mercurialization as a means of warding of the dangers of abortion, regard being had to the fact, that the careless use of mercury may itself be the cause of abortion. In the prevention of abortion from fatty degeneration of the placenta; the strength of the mother should be supported in every way. The chlorate of potash, nitric acid, mild preparations of iron, and, above all, fresh air, should be recommended. The treatment of fatty placenta should be the same as fatty heart, or fatty dageneration of any other organ.

The prevention of abortion is an important subject. The whole of the treatment of the disorders of pregnancy has a direct bearing upon this subject. In women who abort from habit, when the nervous system is chiefly concerned in the production of the accident, all emotional disturbance and reflex sources of irritation should be avoided as far as possible. The pregnant woman should not suckle, or be subjected to any mammary irritation. Mr. Lloyd has related a case in which a small tumour having been removed from the breast of a pregnant woman, she aborted, and died of metritis. Irritation of the dental nerves should be guarded against. The rectum should be remembered, not merely as a neighbour to the uterus, but as possessing excitor surface in reflex relation with the uterus. Ovario-uterine and vaginal irritation should be soothed, and excitement avoided, particularly at the catamenial dates. It is a useful point in the Periodoscope I constructed some years ago, and some thousands of which have been used by the profession, that it points out, at a glance, the catamenial dates of any pregnancy. The late Dr. Griffin, of Limerick, recommended large doses of quinine in the case of women who abort repeatedly at the same date of pregnancy. Mr. White, of Manchester, recommended cold or tepid bathing, with success, as a preventative of abortion. Some accoucheurs advise a daily enema of cold water, in women of weak, irritable habit, When the tendency to abort is very strong, nothing is so likely to prolong gestation to the full term as absolute rest in the horizontal position. When all other means fail, an attempt should be made to eradicate the abortive diathesis by a year's marital separation, and a tonic treatment in the meantime.—*Lancet, March* 22, 1856, *p.* 303.

128.—THE ANATOMICAL RELATIONS BETWEEN THE MOTHER AND FŒTUS.

By Dr. Henry Madge.

[It is sufficiently evident, that if the nature of the vascular connexions between the uterus and the placenta were properly understood we should be better able to treat the various kinds of uterine hæmorrhage connected with pregnancy. It may appear a very easy and simple

subject to some, but there are many opposing opinions on the subject. We hope that the remarks here made will at least assist in simplifying a subject so important to the practitioner and interesting to the anatomist.]

The opportunities of examining the human placenta attached to the uterus immediately after death are so rare, or when they occur are so rarely made use of, that, since the time of the Hunters, the only detailed examination placed on record is that by the late Dr. John Reid, in the 'Edinburgh Medical and Surgical Journal,' 1845. These opportunities seem to have been equally neglected in other countries, for the utero-placental anatomical descriptions of our countrymen are employed as the basis of most of the monographs on the subject by the authors of every country. Even at the Concours, in Paris, which I attended on one occasion, when the subject was "The Membrane Caduque," it was agreeable to hear the candidates, about a dozen in number, repeatedly trying to pronounce the names of Harvey, Hunter, Reid, and Thompson. It would occupy too much space to show, step by step, how far my observations agree with those of Hunter and Reid; but I may state that I find myself opposed to them in many particulars. It must be confessed that the views of those eminent men on this particular subject have been a long time before the profession without any great advantage to the practitioner.

On the evening of Oct. 16th, 1854, a patient of Dr. Parkes, of Great Marlborough-street, died in convulsions a short time after the commencement of labour. With the consent of the friends, I assisted the gentlman in attendance (Dr. Parkes was not present) in making the Cæsarian section, and removing the child. Unhappily, although there was as little delay as possible, and the child full-grown—a perfect model of development—and evidently alive but a few moments before the operation—we had the mortification to find that all our efforts to make it breathe were fruitless. And here I would remark that the death of the mother could not, in this instance, be considered the immediate cause of the death of the child. Dr. Lever, in the last volume of "Guy's Hospital Reports," states that in two instances he has seen and felt the movements of the child in utero half an hour after the death of the mother, and was only restrained from saving their lives by objections raised by the relatives. My friend, Dr. Harley, when house-surgeon to the Edinburgh Infirmary—in a case where a woman at the full period of pregnancy died from laryngitis—was fortunate enough, on removing the child with very little delay, to save its life. Successful cases of a similar nature are not very rare. It is not improbable that in our case the life of the child was destroyed by violent contractions of the abdominal muscles on the uterus, aided by long-continued disturbance of the utero-placental circulation during the convulsions; and it may be added that some have thought the child itself may become the subject of convulsions simultaneously with those of the mother.

After the child was removed I also removed that portion of the uterus to which the placenta was attached. I had previously carefully examined the placenta and membranes *in situ*. The uterus remained in its uncontracted state; its walls had an average thickness of about an inch, and the whole internal surface was lined by the decidua vera. This membrane presented a smooth whitish appearance, covered here and there by glairy mucus, moistened, and probably altered in appearance, by the discharged liquor amnii. Except near the placenta, it was perfectly detached from the chorion and decidua reflexa. The two latter membranes appeared to be somewhat blended; but, with a little care, could be easily separated. On approaching the edge of the placenta, to the extent of an inch around its circumference, the blended chorion and decidua reflexa were firmly adherent to the decidua vera, and required considerable care and force for their separation. My impression is that this is one of the means by which the placenta is kept in its position—i. e., a placenta situated as in this case at the fundus uteri, losing the support of this circular band of union between the membranes, would fall from its situation. The so-called utero-placental vessels and the cellular tissue in which they are imbedded, would be too soft; they are almost gelatinous, and therefore too weak to support the weight of the placenta and cord. The ammion was easily separated from the chorion, even as high up as the cord; and it is possible to carry the separation as far as the navel. The chorion, however, could not be separated from the border of the placenta without tearing. Many of these points, with others that I have to describe, may be seen in the preparation. It is well preserved, and is now before me. About two-thirds of the placenta is still adhering to a portion of the uterus.

After examining the parts in their natural position, I removed them, and hastened home to place the whole in warm water. Then, having cleared the placenta of as much blood as possible, taking care that the water in the basin remained warm and clean, I injected into the umbilical vein a large quantity of warm water coloured. This was done with the intention of learning whether any of it would pass into the water in the basin through the large gaping sinuses on the cut surfaces of the uterine walls. I have frequently failed to inject placentæ from the difficulty of getting them whole; but with this one, no portion of the utero-placental connexions being disturbed, I was enabled to distend it to a considerable size, and after a long time, some of the injection oozed back through the umbilical arteries. Although I continued injecting coloured fluid for upwards of an hour, the water in the basin remained colourless, except indeed being slightly tinged with a little blood that, notwithstanding the pressure I had employed, still remained in the uterine vessels. No portion of the coloured injection passed beyond the placental vessels. This proves, or I should rather say, in deference to the experiments of others, supports the position, that no fluids by means of bloodvessels can pass from the child to

the mother. I now made an opening on the external surface of the uterus, corresponding to about the centre of the placenta, and having found a large artery, I threw into it an injection, consisting, for the sake of its running freely, of a small proportion of yellow wax melted in olive oil. After injecting as much of the oil and wax as it was possible to get in, that part of the examination was left for the next day.

It now occurred to me that I should like to see the utero-placental arteries and veins, or anything else lying or passing between the placenta and uterus. On very carefully lifting the edge of the placenta, and raising its substance for a few inches from the internal face of the uterus, using at the time a powerful magnifying glass, I found that, instead of having torn through arteries and veins, leaving large open mouths, which have been supposed to be the frightful source of uterine hemorrhage, there was really nothing of the kind to be seen. The placenta appeared to be merely in apposition with the uterine decidua, and kept there by the means already alluded to, aided probably to some extent by a very slight and imperfect stratum of cellular tissue. The uterine surface of the placenta, covered by a thin, imperfect membrane, by some called the placental decidua, was not entirely free from marks of blood, but these were only small points, almost as few and as far between as the red points seen on making a section of the brain. I am quite aware that in the practice of midwifery we sometimes find the placenta saturated with blood, but this appearance arises from a cause which I am able to explain; and is it not an argument in favour of my views, that after ordinary labours we frequently find the uterine surface of the placenta almost as free from blood as in this case, where it had not to pass through the natural passages? To proceed with the examination. It must be remembered that the uterine decidua as yet remained perfect. Finding a little bulging at a certain part of it, about an inch from the border of the placental attachment, I made a small incision, and immediately a portion of the injection which I had thrown in at the back of the uterus made its appearance. On the following day, the injection having hardened, I dissected the uterine substance from without to within. I found the injection in several parts, but the greater portion was deposited in lumps, about the size of filberts, on the uterine decidua. The sacculi containing the injection seemed to be formed by processes of the decidua fixed to the uterine walls, forming septa between them; they were irregular in size and form. It was one of these sacculi that I had noticed the day before, on the other side of the decidua, by its bulging appearance.

In the substance of the uterus, I found that the bloodvessels lose their distinctive characters of arteries and veins from without inwards. The inner third is made up entirely of a net-work of sinuses, without any larger arteries and veins than those necessary for the nutrition of the parts in which they are found. These are the small vessels, or

continuations of them, and therefore still smaller, that pass through the uterine decidua, the rupture of which gave rise to the points of blood seen on the uterine surface of the placenta; they are similar to the vessels of new tissues, mere minute canals, as imperfectly organised as the tissues they are intended to nourish. All this goes to prove that fluids do not pass from the mother to the child directly by means of bloodvessels; and also that there are no utero-placental arteries and veins, the rupture of which can give rise to what we call uterine hemorrhage. Where, then, does the blood come from? My conviction is, that when the placenta is removed, the sacculi I have spoken of become over-distended with blood, and burst; the membrane forming them is easily torn, and one after the other they give way. Bnt by this time the outer muscular fibres of the uterus have probably contracted, which, by preventing more blood from being sent into the sinuses, and these themselves being interlaced with contractile fibres, their calibre is obliterated, and the hemorrhage is arrested. The gush of blood which sometimes comes down upon the hand of the accoucheur, I believe arises from the sudden bursting of one of these sacculi. It is difficult to imagine that the open mouths of either arteries or veins could produce such a result. These, however, the proper bloodvessels of the uterus, are comparatively remote from the surface exposed by the removal of the placenta; they only communicate with it indirectly through the uterine sinuses, which form a supplementary and different kind of circulation. The communication of the uterine arteries and veins with the sinuses is somewhat similar to that of the pudic arteries and veins with the corpus cavernosum. The uterine sinuses may be said to some extent to represent the same structure on a larger scale; and I believe that the uterine arteries and veins have no more to do with uterine hemorrhage from the removal of the placenta than the pudic arteries and veins would have with hemorrhage from an exposed surface proportionate in size—of the corpus cavernosum.

I think I have shown that the mere removal of the placenta cannot possibly give rise to hemorrhage. It can only be regarded as an indirect cause of that occurrence, which, after all, is nothing more than a natural and healthy process, a disgorgement of the over-strained sinuses, and, except in a lax and unfavourable condition of the uterus, interfering but little with the general circulatory system of the mother. Formerly, I often wondered at the immense losses of blood which women sometimes sustained with impunity. Now, knowing that large portions during pregnancy are made unnecessary to the mother, and as far as regards quantity, gradually as it were removed from her system, my wonder is much diminished.—*Lancet, Feb.* 23, 1856, *p.* 204.

129.—*Placenta Prævia: Induction of Labour by the Uterine Douche.* By Dr. X. Bourgeois, Tourcoing.—[The patient was a

woman of weak constitution, aged 34, who had borne several children. She was attacked at the middle of the seventh month with hemorrhage, which recurred frequently, and produced so much exhaustion as to endanger her life.]

Dr. Bourgeois determined on employing the uterine douche. The neck of the uterus was smooth and soft; the finger could be introduced into the external orifice, but the internal orifice was closed. The first douche was administered on October 2nd, at 3 p.m., and was continued twenty minutes. Seven quarts of water were injected, at a temperature 95 deg. Fahr. The woman was replaced in bed; she complained of no pain. At 8 p.m., the douche was again repeated for twenty minutes. There was no pain in the abdomen or loins. On October 3rd, the douche was employed from 9 to $9\frac{1}{4}$ a.m. During the operation, labour pain set in, and recurred several times during the day, the uterus becoming hard. In the evening, the neck of the uterus was almost obliterated, and, on passing the fingers into the orifice, the cotyledons of the placenta could be felt. During the night, the patient slept a little, but was soon awakened by pain. On October 4th, dilatation was going on and the pains were lively. On October 5th, the pains recurred every quarter of an hour. The placenta, which was inserted on the inferior segment of the uterus, became detached, and passed into vagina: from this situation Dr. Bourgeois removed it, and placed a ligature on the cord at its fœtal end. The head descended slowly,; and in the evening, seven hours after the expulsion of the placenta, a small dead child was born. There was no loss of blood; and the patient made a favourable recovery.

Comparative Merits of the Uterine Douche and Ergot.—In some remarks appended to the above case, Dr. Bourgeois draws a parallel between the uterine douche and ergot. The douche, says he, may with advantage be substituted for ergot in almost all cases.

Like ergot, the uterine douche may arouse contractions; but it has the further merit of exciting them—a property which ergot is by no means demonstrated to possess.

When the contractions are weak or suspended, the action of the douche is as efficacious as that of ergot; while it endangers neither the mother nor the child. On the other hand, ergot has caused, in the mother, rupture of the uterus, laceration of the vagina and perineum, fistula, and gangrene; and, in the infant, asphyxia, &c.

The action of ergot, whether the dose be weak or strong, cannot be regulated. The douche, on the other hand, acts gradually; it softens and distends the neck and external parts, and facilitates expulsion. Its force may in some degree be regulated according to the indications.

Before ergot can be given, labour must be advanced, the neck of the uterus must be obliterated, the edges of the uterus must be soft, dilatation must be easy, and the external parts must not be too resistant. The douche, on the other hand, may be employed at the

commencement of labour, and in all degrees of dilatation of the neck, even when the liquor amnii has been prematurely discharged.

When severe hemorrhage sets in during labour, and the neck is not sufficiently dilated to allow of the employment either of the hand or the forceps, accoucheurs employ ergot. Would it not be better to employ the douche, which would act more certainly and readily, and would not give rise to the dangers which ergot produces when given before the neck is completely dilated?

Dr. Bourgeois has found that the uterine douche is capable of arresting hemorrhage occurring during labour from inertia of the uterus. —*Gaz. des Hopitaux. Oct.* 27, 1855.—*Association Med. Journal, Jan.* 12, 1856, *p.* 29.

130.—CASE OF TURNING AS A SUBSTITUTE FOR CRANIOTOMY.

By Alex. Morton, Esq. Communicated by Dr. James Wilson.

[Mrs. C., a healthy married woman, aged 25, after her first labour, which was easy, had a severe attack of what was considered rheumatism about the pelvis. Her second labour was also comparatively easy, because premature. Her third labour was very difficult: the head of the child became impacted, an attempt was made to deliver with the forceps, but failed, and craniotomy was necessary. In her fourth labour, Mr. Morton determined to adopt the plan proposed by Dr. James Wilson, a few years ago. On making an examination, the head was found presenting, evidently thrown forwards by the promontory of the sacrum, and prevented from entering the pelvis. The pains were regular and severe, but had no effect upon the position of the presentation.]

The patient having now continued about 24 hours in labour, and no progress made towards delivery, dreading a repetition of the painful proceeding which occurred at the third labour, I resolved to delay no longer, but to profit by the suggestions thrown out by Dr. James Wilson in similar cases, and turn the child, if possible, before the evacuation of the liquor amnii. I sent for him; and the plan proposed was approved of, as the more likely means to save the child, and save the mother much suffering.

It was agreed to proceed at once. I introduced my right hand into the vagina, passed it easily through the os uteri, and slipped it up between the membranes and walls of the uterus. I ruptured the membranes, grasped the right knee of the child, brought down the breech and left leg; with considerable effort I was enabled to bring down the left arm, then the right arm; the head rested on the brim of the pelvis. I endeavoured to bring it down by introducing a finger of the left hand into the mouth, and at the same time applying traction with the right hand over the shoulder. I was unable to bring it

down with such force as I considered safe to use. Dr. Wilson then made trial in the same way. The base of the head was now in the brim of the pelvis, but it could not be brought farther without using such a degree of force as would have destroyed the child. I immediately applied the forceps and completed the delivery.

The child, a girl of ordinary size, was still-born; but by inflating the lungs, and the use of other means, in the space of half an hour the breathing was completely established. Both mother and child continued to progress most favourably, the former being able to be up on the eighth day, and the latter at present alive and well.

Remarks by Dr. Wilson.—This case shows, most satisfactorily, the advantage of turning in those cases where the pelvis is so constructed as not to admit of a child, at the full time, being delivered without the disagreeable and destructive alternative of embryotomy. There were several circumstances in this case which, without doubt, tended very much to a favourable result. In the first place, Mr. Morton, in anticipation of turning, had taken great care to preserve the membranes entire; this rendered the operation easy and safe to both mother and child. There was also a very great quantity of liquor amnii; and other favourable circumstances, as the unimpaired strength of the patient and energy of the uterus, rendered the extracting force much less than it otherwise would have been had the uterus been passive, or acting irregularly, as it often is in these cases. The last circumstance worthy of notice, was the great advantage derived from the use of the forceps in the speedy delivery of the head. I do believe the child's safety depended on this. The application of the forceps was just as easy as when the vertex presents above the brim; and the extracting force used by the forceps was certainly safer than the same force used by pulling by the body or neck of the child. Besides, the necessary compression of the head may be more effectually accomplished than by the irregular and jutting points of the distorted pelvis; the pressure made by these points may not be on those parts of the head which admit of compression at all; but we are always sure, when the forceps are applied over the sides of the head, that the pressure is made over the whole line of the parietal bones from below upwards—the parts alone capable of being compressed.

It has been stated above, that the forceps were easily applied. I am convinced, from the trials I have made of the forceps in those cases where the head was above the brim of the pelvis, that the application of the instrument is easier than in vertex presentations, because you have the head fixed, and you know exactly its position.

With regard to the extent to which compression of the head may be safely carried, that has its limits, and may, in the most of cases, be carried to the extent of half an inch. Dr. Burns, in a foot-note, p. 431 of his 'Midwifery,' says:—"The head can bear more pressure before the child is born than after it has breathed. Respiration is more under the influence of the brain than the action of the heart is;

and the action of the latter ceases when the brain is injured or compressed, not so much because it is directly affected, as because respiration, with which it is associated, ceases." Be that as it may, no conscientious practitioner would presume upon it; and I do not think Dr. Burns stated this with any view to encourage rashness, or carry compression to any undue length.

In all cases where the head is detained after the delivery of the body, surely the use of the forceps, for the purpose of extracting the head, is greatly preferable to pulling by the body or neck of the child, whether the detention of the head be from a contracted state of the pelvis, or from any other cause. Baudelocque says, p. 124:—"Every one knows the danger to which the child is exposed in those labours where we are obliged to extract it by the feet, especially when the pelvis is rather narrow with respect to the volume of the head. Its death then is almost always inevitable, whether we exert violent efforts on the trunk with a design to extract the head, or leave the delivery to nature, after having disengaged the feet, as some have too generally recommended. In the first case, the child is a victim to the forced extension of the spinal column, the stretching of the spinal marrow which it contains, and the luxation of some of the cervical vertebræ, or of the head itself; in the other, its death is, on the contrary, the effect of the pressure which the umbilical cord as well as the breast suffers in passing the canal of the pelvis. . . . Art holds out but a feeble hand to the child in this unfortunate circumstance, and the most certain of its resources does not always secure the child from the pressing danger which threatens it. Smellie applied the forceps several times with success in these cases, and I have trod in his steps." I need hardly mention that both these authors, and others, have given particular directions, with plates, how the forceps are to be applied when the head is detained after the body is delivered. When lecturing on midwifery, I was in the practice of exercising my students with the delivery of the head in this way, with the forceps upon the machine.

While upon this subject, I may mention that I have met with a species of pelvic deformity in two individuals, particularly well adapted for turning, and which occasioned me a very great deal of trouble, and the mothers much suffering, with the loss of several children, before the nature of the deformity was discovered by me. The malformation was this: the lumbar vertebræ were very much curved forward, carrying the base of the sacrum in the same direction, while the lower parts of that bone were bent backwards, forming nearly a right angle with the spine. This inclination of the pelvic brim was at the same time much more inclined than it is in the normal state; in fact, the pubis was almost directly below the projecting promontory. The head of the child was consequently thrown over and upon the pubis, rendering it impossible for the head to enter the brim. An ordinary examination conveyed the impression of extreme want of space,

the head lying over the pubis, and the projecting promontory almost directly above it led to the deception, and it was not till after several children were lost that I discovered, by the introduction of the hand to remove a retained placenta, that there was space enough, both in the brim and cavity of the pelvis, and that the child could be easily brought to pass by the feet, while it could never be made to pass by the head, as I had unfortunately experienced in the former deliveries without breaking down the head.

There is a notice of this malformation of pelvis in Bland's observations on human and comparative parturition, so much in point that I cannot avoid quoting it. He says—"Although the sacrum may project so much, or advance into the pelvis so far, as to reach within two or three inches of the pubis, consequently the entrance into that cavity would be only of that diamenter, if the bones were directly opposite to each other; yet the pubis being placed something lower than the greatest projection of the sacrum, and opposite to a part of that bone that diverges backward, the real distance between them may be much more considerable than to the touch it may seem to be; whence it happens, that in cases where the projection of the sacrum has occasioned exceeding great difficulty in the beginning of the labour, opposing an almost insuperable bar to the entrance of the head of the child into the pelvis, by directing too far over the pubis; yet, when that direction has been altered by the crotchet, or by any other means, and the head brought into the line of the centre of the pelvis, the conclusion of the labour has been frequently effected with very little exertion or force."—Page 200.

Possibly this abnormal obliquity of the pelvis may exist in different degrees more frequently than is generally supposed. Churchill speaks of this inclination of the pelvis varying from 35 to 60 degrees. In all these deviations the labour must be affected less or more, unless the belly of the women is pendulous, carrying the uterus so far forward as to make its axis correspond to the altered axis of the pelvic brim. In slight cases of this kind, and where the belly is not pendulous, the difficulty may be obviated by placing the patient on her knees, from which change of position all must have witnessed, at times, very rapid and favourable changes take place in labour, which had previously made no progress for many hours. But in the higher degrees of obliquity, as in those cases referred to above, where the obliquity appeared to be not less than 80 degrees, I am fully convinced that nothing except turning can possibly save the child from its destruction by the crotchet.

By the way, it is a good proof of the success of turning as a substitute for craniotomy, when we see a variety of claims put forth for its paternity. I am convinced Dr. Simpson has the best claim to that honour, particularly as giving it publicity, accompanied with reasons for its preference which appear to me to be quite incontrovertible. It is true, Sir Fielding Ould suggested the same thing in the year 1742

in his work which he published at that time; but he says he never tried it, and it would appear that the Dublin school, of which he was a distinguished member, had either not been aware of his proposal, or had repudiated it, as their practice has been the very opposite of his conservative plan. Nevertheless, I am sure Dr. Simpson, and every one who entertains his opinions respecting turning as a substitute for craniotomy, will cheerfully yield the claim of priority to their Dublin riends, provided they follow out Ould's views, and adopt turning in suitable cases for it in preference to craniotomy, for which they appear to have had hitherto an unnatural partiality, according to the Dublin Hospital reports.—*Glasgow Med. Journal, Jan.* 1856, *p.* 394.

131.—*On the Action of Digitalis upon the Uterus.* By W. Howship Dickenson, Esq.—[Having observed that a patient in St. George's Hospital was cured of severe menorrhagia by infusion of digitalis, which was given for some cardiac affection, Mr. Dickenson was induced to try the remedy in other cases, the result of which was as follows.]

In every case of uterine hemorrhage, unconnected with organic disease, requiring the employment of active remedies, admitted into the Hospital after October, 1854, the administration of digitalis was had recourse to as the sole treatment, and the discharge was invariably arrested by it. The time which elapsed before the hemorrhage subsided varied with the dose in which the digitalis was exhibited. When large doses were given, as an ounce to an ounce and a-half of the infusion, the discharge never appeared after the second day; when smaller doses, it never continued beyond the fourth day. In uterine hemorrhage connected with organic disease, the remedy acted with less certainty; its exhibition was required for a longer time, and the effect was sometimes transient. The author then spoke of the mode in which the digitalis operated in controlling uterine hemorrhage; and after concluding that its effect could not depend on the sedative influence of the drug in the heart and arteries, he showed, by various experiments and observations, that the arrest of the hemorrhage was due to the action of the di italis on the ganglia of the uterus, by which the organ was stimulated, and muscular substance powerfully contracted.—*Med. Times and Gazette, Dec.* 15, 1855, *p.* 609.

132.—*Puerperal Peritonitis in the Fœtus and new-born Child.*—M. Paul Lorain, in a thesis on puerperal fever, has traced the coexistence of peritonitis in the infant with puerperal fever in the mother. His opportunities of investigation were afforded him in the Maternity Hospital in Paris, of which institution he was for some time an *interne.*

It is a striking fact, which indeed has not altogether escaped atten-

tion, that the greatest amount of mortality among newly born children is coincident with attacks of puerperal fever. M. Lorain found that, out of 106 still-born children, 20 had died from mechanical injury, or accident during labour; 2 from pemphigus, and 10 from intra-uterine peritonitis. Of 256 new-born children, who died at periods varying from a few hours to a few days after birth, 63 were premature and non-viable; and of the remaining 193, 50 died of peritonitis, either simple or complicated with erysipelas, meningitis, abscesses, &c., 10 having all the symptoms of putrid infection. Further, he found that, in 30 deaths among newly-born children from peritonitis, the mother also died from the same disease in 10 cases; while in 5 other cases the mothers had had puerperal affections, but had recovered.

Peritonitis is the only manifestation of the disease in the fœtus. In newly-born children, it has been observed in the form of peritonitis, either simple or complicated with erysipelas, inflammation of the umbilical vein, meningitis, &c., or in the forms of meningitis, pleurisy, abscesses, gangrene, &c.; but the most common form is peritonitis. The mother and child may die of different forms of the disease; for instance, the mother may have meningitis, the infant peritonitis; the infant may die of peritonitis, and the mother of purulent infection, &c.

The principal characters of puerperal peritonitis in newly-born children are thus described by M. Lorain.

The face expresses suffering; the abdomen is tense, gives a tympanic sound, and appears very tender on pressure. Respiration is shallow, short, and frequent. The skin is yellow. The child cries incessantly. It has vomiting, and a bilious fluid escapes from the mouth and nostrils. The pulse is small, and much accelerated; there is generally constipation. The child refuses the breast, especially towards the end of life.

The progress of the disease is very rapid; it generally terminates (always fatally) in three or four days. Most of the children die in ten days after birth. M. Lorain observed only one which was a month old, and another which lived forty days.

One of the most important forms of the disease is the adynamic, characterised by torpor, somnolency, hemorrhage from serous and mucous surfaces, and scorbutic patches on the skin. In these cases, death sometimes occurs within forty-eight hours after birth.

The most usual complications of puerperal peritonitis in the infant are erysipelas, phlegmon, meningitis, and sometimes pleurisy. The symptoms of some of these, especially meningitis, occasionally supersede those of peritonitis.

The only premonitory symptoms are the restlessness of the child, and its plaintive cries. The disease advances so rapidly, that it is often first suspected only when it has attained its height.

The *post mortem* appearances are characteristic. The jaundice, the great enlargement of the abdomen, the escape of green fluid from the

nostrils, and the rapid putrefaction, render the bodies of those who have died of infantile peritonitis easily recognisable. The peritoneum contains an effusion of serous or sero-sanguineous fluid, rendered turbid by pus and false membranes; and the tunica vaginalis often contains effusions of the same nature. The false membranes have the same microscopic characters as in ordinary peritonitis; the pus is small in quantity. The spleen is often double its normal size; this has also been observed in peritonitis in the fœtus. The tissue of the organ presents no marked change. In some rare cases, there has been a morbid change in the liver. No change has ever been observed in the lymphatic system.

Of all the accompanying lesions, that of the umbilicus is most worthy of note. As soon as the febrile state supervenes, the umbilicus is placed in the condition of an amputated stump. The wound becomes grey and dirty, and does not tend to heal; the neighbouring vessels also suffer, and the coagula which form in them soften and break up. M. Lorain does not regard the affection of the umbilicus as the cause of the peritonitis. ('Gazette des Hopitaux,' October 20th, 1855).

In relation to the above paper, Dr. Belletre, of Abbeville, has communicated the following facts to the 'Gazette des Hopitaux' for November 10th, 1855:—

During an epidemic of puerperal fever which prevailed at Abbeville in 1851, and in the beginning of 1852, fourteen women died within a few months: nine between the sixth and twelfth day after delivery, five before the end of the third day. In the first category, all the children born enjoyed good health during the earlier weeks after birth. In the second category, there was one abortion at three months, and one child was born dead; three were born alive, but although strong and healthy, they did not live longer than from 43 to 68 hours. Two were seized, six or seven hours after birth, with marked symptoms of peritonitis. The mothers had already perceived in themselves some symptoms of the disease towards the end of pregnancy. In both cases, the umbilical cord was dry, and of a dull grey appearance. The third patient fell ill on the day after birth; it had at first peritonitis, which was soon followed by pleurisy, with adynamic symptoms.

M. Belletre also calls attention to the fact, that an epidemic of puerperal fever appears to exercise some influence on non-pregnant females—a fact which has, indeed, been noticed by other observers. He relates three cases of peritonitis occurring, during an epidemic of metria, in females who were not pregnant. In one case, the disease, appeared after suppression of the catamenia. The other two patients had slight metrorrhagic attacks at intervals of a few months, ordinarily lasting a few weeks; and it was during one of these attacks that they were attacked with peritonitis. One of these two patients died, as did also the former one.—*Asso. Med. Journal, Jan.* 12, 1856, *p.* 31.

133.—*Seat of Attachment of the Placenta.*—[In a memoir, by Von Ritgen, there is an elaborate and interesting illustration of this subject.]

He refers to the method discovered in recent times, of determining after delivery the height at which the placenta was attached, by measuring the distance of the rent in the membranes made by the passage of the liquor amnii and fœtus from the margin of the placenta.

The bag burst at the edge of the placenta in 22 cases. It burst at one inch from the edge in 8 cases; between one and two inches in 12 cases; two inches in 7 cases; between two and three inches in 16 cases; three inches in 5 cases; between three and four inches in 4 cases; four inches in 6 cases; between four and five inches in 8 cases; five inches in 3 cases; six inches in 6 cases; and eight inches in 3 cases.

It follows, that since the distance of the edge of the placenta from the rent is absolutely decisive as to the distance of the edge of the placenta from the os uteri, that the edge of the placenta rested on the os uteri in 22 cases, and was within one inch in 32 cases, within two inches in 49 cases, and so on.

This proves that the placenta has commonly a much lower seat than has hitherto been believed.

It also appears that smallness of the ovum has a closer relation to lower seat of the placenta than is to be accounted for by the simple diminution of all the dimensions of the uterus.—*Brit. and For. Med.-Chir. Review, April*, 1856, *p.* 554.

134.—ON THE MANAGEMENT OF PLACENTA PRÆVIA.

By Dr. Robert Barnes (Read before the Medical Society.)

The author passed in review the actual state of obstetric science and practice in relation to the pathology and treatment of placenta prævia. He showed that the prevailing belief was, that so long at the delivery of the child was not effected there was no security against hemorrhage, and that hence the rule in practice of proceeding to forced delivery as early as practicable was almost universally inculcated, the only exception consisting in the more or less general substitution of the plan of totally detaching the placenta. The author thus showed that, while the practitioner was anxiously waiting for the moment when the dilatability of the cervix uteri would permit the passage of the hand, for the purpose of turning, the patient might perish of flooding; and that, therefore, in the most severe class of cases, those of central placenta, some other resource, some means of placing the patient in security against renewed flooding, before the full dilatation of the os, was eminently desirable. Dr. Barnes then explained the physiological course of a labour with placenta prævia, and the mode in which Nature sometimes arrests the

hemorrhage before the expulsion of the child. He illustrated, by the help of an ingenious and interesting diagram, that a stage of labour arrives when the recurrent contractions of the womb do not entail any further flooding; that the pains return in their usual course, with the usual effect of further dilating the os uteri, and forwarding the labour, but without causing any further flooding; that the labour was in fact resolved into a natural one, and would be safely concluded by the natural powers. Reflection upon these cases had led Dr. Barnes to doubt the truth of the obstetric dogma, which declares that there is no security against hemorrhage, so long as the presence of the liquor amnii or the child in the womb prevent full contraction. Dr. Barnes then unfolded the anatomical, physiological, and clinical facts which led him to the conclusion that, under proper restrictions, Nature might in many cases be trusted to with more confidence than was generally believed. The clinical facts, he said, had come to him first, and led him to examine into the anatomical and physiological bearings of the case. He related cases in illustration, and quoted a commentary upon one of these cases from the memoir he had published ('Lancet,' 1847), in order to establish his priority in the enunciation of the views he now laid before the society; and adverted to the fact, that he had, since the publication of that memoir, constantly taught, in his lectures on Midwifery, the same doctrine; and stated that even the original of the diagram now exhibited, rudely sketched, was also figured in the memoir referred to. He had, therefore, believed his views to be original, and was surprised to find, in several numbers of the 'Berlin Monatschrift für Geburtskunde,' for the present year, a controversy between Dr. Cohen, Dr. Credé, and Professor Hohl, in which Dr. Cohen for the first time expounded similar views to his own, whilst Dr. Credé, referring to writings of 1853–54, also claimed them; and Professor Hohl assigned them to Dr. Zeitfuchs so far back as 1843. Dr. Barnes acknowledged, with pleasure, that Dr. Cohen's views of 1855 fully confirmed those put forth by himself in 1847; but he found, in the writings of Credé and Zeitfuchs, nothing whatever to show that either had, in the remotest degree, possessed himself of the points in question. But Cohen had gone beyond the author in proposing a new operation based upon the physiological and clinical facts expounded. This operation consists in—1st. Determining the side of the uterus to which the smaller flap of the placenta is attached; 2. In rupturing the membranes and detaching the placenta from this half of its circumference; 3. Exciting uterine contraction; 4. Hooking finger over edge of placenta, tearing membranes from the freed border of the placenta; and 5. In separating the placenta in a circumference of 190° to 200°. The greater half of the placenta, now freed from the dragging of the lesser half and membranes, is now drawn back, just as in placenta lateralis, with the uterus. From this moment there is no further danger. Cohen insists, like the author, on the impropriety of hastening labour unless urgent complications arise. Dr. Cohen

refers to his experience to prove the efficacy of this method, but does not recite any cases in illustration. Dr. Barnes pointed out that the difference between his memoir and that of Dr. Cohen consisted simply in this:—Cohen had, in 1855, carried forward the principle Dr. Barnes had enunciated, in 1847, by proposing the artificial partial detachment of the placenta, instead of trusting, as Dr. Barnes had recommended in certain cases, the execution of this operation to the powers of Nature. The author then quoted from Sir Charles Hill passages showing that the anatomical distribution and physiological action of the muscles of the uterus accorded with and explained the clinical facts observed in the course of intermissions and cessations of hemorrhage from placenta prævia as set forth by Dr. Barnes. The author then explained the mode and mechanism by which the hemorrhage in placenta prævia is arrested. The opening of the mouth of the wound, and the detachment of the placenta adhering to this part, are effected by the active contraction of the longitudinal muscles of the uterus; this active contraction shortens the cervix, when it intermits a passive contraction goes on, which maintains or even increases the shortening of the cervix. This shortening necessarily compresses the torn mouths of the vessels, and checks the flooding caused by each successive detachment of fresh placenta, until the detachment has gone to the boundary line, beyond which point the further expansion of the cervix has no effect, and when all fear of flooding is at an end. It was not therefore necessary that the uterus should be empty in order to arrest the flooding. This arrest depended upon the contraction of the cervix, which went on, although the fundus and walls were prevented from contracting. Dr. Barnes submitted the following as some of the conclusions deducible from his researches:—

1. In cases of placenta prævia, the hemorrhage is sometimes arrested spontaneously before the complete detachment of the placenta, before the discharge of the liquor amnii, and consequently before the expulsion of the child or the pressure of its head against the cervix.

2. That this spontaneous arrest of the flooding is owing to the sealing up of the vessels torn by successive detachments of placenta, and the attainment of a stage of labour when no further detachment can take place until after delivery.

3. That dangerous and even fatal flooding sometimes occurs while the os uteri is still closed, and so undilatable as to render it impossible or inexpedient to have recourse to forced delivery.

4. That in such cases it is eminently desirable to possess some means of diminishing the hemorrhage until the hand can be passed through the os uteri.

5. The spontaneous or artificial detachment of the cervical portion of the placenta competes with two most formidable operations, dangerous to mother and child—forced delivery, and the total separation of the placenta. The new principle of treatment may, in many cases,

supersede forced delivery altogether; since the patient being secured against further flooding, to resort to turning when the flood has ceased is an unnecessary proceeding, although the os uteri may admit of it. In many more cases this principle will be the means of gaining the necessary time to admit of turning or other modes of forced delivery being performed with safety. In almost every case it may supersede the practice of wholly detaching the placenta, since the end in view being the arrest of the flooding, it is better to detach only just so much of the placenta as will effect this end, than by detaching all, to destroy the child.—*Med. Times and Gazette, Dec.* 29, 1855, *p.* 653.

135.—*The Period of Exclusion of the Placenta.*—Von Ritgen says, that instructions were given in the hospital for many years, not to remove a detached placenta without the express permission of the director. The reason was, to ascertain whether the leaving behind the detached placenta would cause mischief to the mother by absorption of the dead matter. This rule was followed for a time, so far as to allow the placenta to remain several days, and until the foul smell became insupportable; but at a later period it was not carried to this extreme, after it was ascertained that *no absorption of decomposing constituents of placenta ever took place, except in cases of fleshy growth of the placenta to the uterus.*

Summarily expressed, the detached placenta remained fifty-two times, or in about one-half the cases, less than four hours in the uterus; and in the other half, between four and fourteen and a half hours.

The spontaneously completely detached placenta was removed artificially in 3 cases on account of hemorrhage. In 1 case it was removed on account of spasmodic pains. In 2 cases after operations. In all the rest, the placenta was removed on account of severe after-pains, heavy pressure of the vagina, difficulty of micturition, disturbance of rest and sleep.—*Brit. and For. Med. Review, April,* 1856, *p.* 555.

136.—*On Molar Pregnancy.* By Dr. Tyler Smith.—The treatment of molar pregnancy consists in emptying the uterus of its diseased burden, and in supporting the strength of the patent, and warding off accidents while the mass remains in utero. In the carneous moles of small or moderate size, active treatment is very much impeded by uncertainty of diagnosis. If in a case of suspected molar pregnancy the life of the mother should be threatened the ovum should be detached by a catheter or the uterine sound, without hesitation. The ergot of rye may be given, with a view to the arrest of bleeding and the excitement of uterine contractions; but in ordinary cases we are obliged to wait, as in abortion, until the ovum presents at the os uteri, or can be reached with the finger, before we attempt to remove

it. If the diagnosis of this form of molar pregnancy should become, as we may hope it will, more perfect and certain than it now is, we might separate the ovum by the sound, detach the os and cervix by sponge-tents, or excite the uterus by galvanism. In the case of hydatid degeneration the treatment is more positive. It is usual in such cases to give the ergot of rye to induce uterine contraction. If the os uteri is dilatable, we may introduce the hand, and detach the hydatid mass. Dr. Gunning Bedford relates the case of a woman in extreme danger from loss of blood, in which he broke down the hydatids with a female catheter successfully. The hydatids are sometimes attached very firmly, and I once saw a case in which the uterus had been ruptured by the violence of its contractions in expelling an hydatid mole. In the case of a retained ovum with degeneration of the placenta, the membranes should be ruptured, and the expulsion of the diseased ovum brought on, as soon as the mother's health suffers seriously, or the nature of the case becomes unmistakable. The after treatment of such cases is much the same as after ordinary abortion; but it must be said that the health is more broken after molar pregnancy than by the results of simple abortion.—*Lancet, April* 5, 1856, *p.* 363.

137.—*Contractile Power a Sign distinguishing the Pregnant Uterus from all other Abdominal Tumours.*—In a case some little time ago under care in one of the Medical wards of Guy's Hospital, in which a consultation was held to determine whether a large tumour in the abdomen of a young unmarried woman were a pregnant uterus or not, Dr. Oldham took the opportunity of showing to the Students that a certain power of contraction was possessed by the tumour which marked its true character. The patient's abdomen being well exposed, the outline of the tumour was seen to be less defined before manual examination. than it became afterwards. The hand being applied the tumour at first felt soft and ill-circumscribed, rapidly, however, assuming under pressure a tense rounded form, becoming firm and resisting. · The alteration from flaccidity to tension was very marked, and might, as Dr. Oldham observed, be taken as a trustworthy characteristic of a pregnant uterus, since there was no other tumour which possessed any power of altering its form when irritated by palpation.—*Med. Times and Gazete, Jan.* 26, 1856, *p.* 88.

138.—FIBROUS TUMOUR OF THE WOMB REMOVED BY INCISION AND ENUCLEATION.

By Thos. P. Teale, Esq., F.L.S., Surgeon to the Leeds General Infirmary. (Reported by Mr. J. W. Hopkins.)

[The subject of this case was a married woman, aged 53. For several years she had been in delicate health, and during the last two years the menstrual discharge had been very excessive. A few months previous

to her present admission, she was a short time in the infirmary, and by keeping in bed, and the administration of the decoction of ergot, the discharge was much diminished and her health improved; but, on returning home, she gradually got even worse than before, and she was again admitted on Nov. 7th, 1855.]

On examination by the vagina, a large tumour was felt imbedded in the posterior wall, and posterior portion of the neck of the womb. The portion of the tumour occupying the distended cervix formed a rounded mass, filling the hollow of the sacrum, and extending from the posterior duplicature of the vagina to the pubes. High up above this tumour, the anterior lip of the mouth of the womb could with difficulty be reached, by passing the finger upwards behind the pubes. The tumour was round and firm, filling the pelvis. It could not be distinctly felt through the thick abdominal walls above the pubes.

On Nov. 12, Mr. Teale made an incision through the coverings of the tumour, at its lower part, commencing at the posterior duplicature of the vagina, and extending downwards in the median line, for three inches, or more. He then gradually proceeded to enucleate the mass, introducing one, and afterwards two and three fingers, and, at last, the whole hand, between the tumour and the uterine tissues in which it was imbedded. By traction with the hand, aided by lithotomy forceps, the entire mass, being already separated from its attachments, was without much difficulty removed. The cavity of the womb was intact, the tumour having been contained within the posterior wall of the body and neck of this organ. Scarcely a drop of blood was lost during the operation. An opiate, with a glass of brandy-and-water was given to the patient.

The tumour was 6 inches long, and 4 broad, its larger circumference measuring $13\frac{1}{2}$ inches, the smaller $11\frac{1}{2}$. It weighed upwards of eighteen ounces. It was found to consist of fibres, similar to those of the white fibrous tissue, without any of the yellow elastic kind. When acetic acid was applied the fibres became swollen, and nearly transparent; and numerous oblong nuclei were distinctly seen.

[For two or three days there was a profuse watery discharge from the vagina, which soon assumed a yellowish tinge: this daily diminished in quantity, became purulent, and entirely ceased in about three weeks. There were no unfavourable symptoms. She was kept well up by brandy and nourishment, her health gradually improved, and although not strong, she is able to attend to her domestic duties.]—*Med. Times and Gazette, March* 22, 1856, *p.* 283.

139.—ON OVARIAN TUMOUR.

By Dr. Corrigan, Physician to the Whitworth and Hardwicke Hospitals, Dublin.

[In a clinical lecture on a case which had been under observation for some time, Dr. Corrigan *first* drew attention to the nature of the tumour. It was multilocular, and of two different formations: one, a

very large simple cyst, containing fluid; the other, a congeries of small cysts, filled with a semi-gelatinous curdy fluid. *Secondly*, he noticed its very rapid growth: in five months it had increased to such a degree, that it was evident life could not exist much longer, if she were not relieved from the pressure. She was tapped, and the fluid increased so rapidly, that the operation was repeated twice within three weeks. Her state rapidly became more unfavourable, the solid mass remaining after tapping increased, the operation was frequently necessary, and, after one of these, peritonitis came on, and she died in two days.]

The third point is the illustration of diagnosis of ovarian disease afforded by this case. It might have been confounded with pregnancy, or with peritoneal dropsy. It would be out of place to go into all the lengthened details of diagnosis. I shall confine myself to the most certain—the physical diagnostic signs. An enlarged uterus, and the ovarian cyst, as in this case, would equally produce an oval, smooth prominence in the abdomen, and would equally give dulness on percussion as far as the prominence extended; but the enlarged uterus would not give the distinct fluctuation which was perceptible in this case on palpation. The disease might be confounded with ordinary peritonæal dropsy, from the distinct fluctuation which was so perceptible in consequence of the great size of the large superior cyst, the thinness of its walls, as well as the extreme thinness of the abdominal parietes; but change of position shewed that the fluid was contained in a cyst, situated in front of the intestines, for the anterior portion of the abdomen was dull on percussion, no matter how position was altered, while in peritoneal dropsy, alterations of position, it is well known, in nearly all cases, cause corresponding alterations of dulness and clearness of sound on percussion, according as the intestines, distended with air and fluid, change their relations of level. In this case also percussion of the lumbar region very far back gave useful information, for, as the patient lay on her back, and percussion was made passing down from the umbilicus on each side into each lumbar region, the sound became clearer over each side between the short rib and crest of the ilium, showing that the intestines were forced back into this situation, and were not surrounded by a free fluid, which would have permitted them to float through it.

The fourth point includes the circumstances of the operation performed so often for her relief. Ovarian tumours differ so much in size and structure, that it is idle to speak of them as a class of diseases to be treated on any general principle; each must be considered and treated *per se*. In the present case there was no time, even if it held out any hope of success, of attempting absorption by medicine. The operation of excision we may now consider as abandoned, unless in cases where it is not necessary, and then it is not justifiable; so that we were reduced to paracentesis, and the only question remaining was, whether it would be more advisable to close the opening after dis-

charging some fluid, or to keep it open, allowing the cyst to take on a purulent action, and contract in itself as hydroceles of the neck do. There was this consideration in favour of the latter, that there was adhesion of the large cyst to the peritoneum, for the most careful and repeated examination could detect no sound of frottement on moving the abdominal parietes to-and-fro; but then, on the other hand, the highly marked strumous diathesis of the patient, and the presence of the great number of smaller and hard tumours in the pelvis rendered it, I may say, quite certain, that a process of suppuration, if established, would certainly prove fatal by exhaustion and irritative fever. There remained then, only the operation of paracentesis, and to some particulars connected with it I would beg to draw attention. There are two modes recommended for this operation; one to draw off the fluid by small portions at a time, to save the patient from the exhaustion consequent on the removal of such an amount of pressure from the circulation; the other, to draw off the whole quantity at once, taking care to have the abdomen well swathed, so as to substitute an external pressure for the pressure of the fluid removed. The first mode has no definite rule for the quantity to be removed, and involves, if only very small portions be removed, very frequent repetition of the operation. The second, that is, the operation of discharging the whole quantity of fluid at once, and maintaining an outward pressure by bandage, has, I think, this very serious danger attendant on it, that by evacuating the contents at once, and imposing an outward, and, as it must be, a considerable pressure on the sides of an unhealthy structure, the walls of the cyst are brought in friction against one another; duplicatures or folds are produced in a structure of low vitality and power, the circulating and vital nutritive functions going on in it are readily impeded, and a low inflammatory or congestive action is readily set up, which will quickly propagate itself, and as we know it is a law in inflammation of serous membranes, that inflammation will spread from contiguous surfaces, the unhealthy inflammatory action that may be originally confined to the empty cyst will propagate itself on the opposing surface of the peritoneum, and thus the amount of disease and of danger will be much increased. I would beg to submit the plan followed in the several tappings practised in this case, and what would appear to me to be deserving of consideration, as free from the objections attendant on the two modes noticed. It is to allow the fluid to flow without using bandage or pressure, neither closing the orifice too soon, as might be done in compliance with the first rule, nor forcing out all the fluid with the consequent danger adverted to from adopting the second plan; simply to allow as much of the fluid to flow gradually out as the natural elasticity of the distended cyst, and the corresponding return of muscular tone in the parietes of the abdomen and of the diaphragm will expel; and when the flow has quite ceased of itself, to close up the orifice, the patient of course retaining the recumbent position. The observance of this simple rule,

I believe, gives us a measure of the proper portion to withdraw without the danger of producing exhaustion, and avoids, on the other hand, the danger that I have already adverted to, as attendant on the sudden withdrawal of the whole contents of the cyst. I believe I have also seen great safety from this mode of operation, in some of those diffuse abscesses in the neck accompanying scarlatina, in which the diseased cellular tissue has lost its elasticity, and cannot follow with corresponding contraction the sudden evacuation of the whole contents, but in which, if the matter be allowed merely to flow out by the *vis a tergo* without any handling or external pressure, the surrounding parts will follow up with slow but steady and corresponding contraction, the gradual flowing out of the matter; and the entrance of air, and duplicatures and friction of unhealthy structures upon themselves will be avoided. The last, or seventh operation, in W.'s case, was followed by fatal result, but this does not I think affect the question under consideration. The pelvic tumours were rapidly increasing in size, and must soon have terminated life, and one of these, a structure of low vitality was wounded by the trocar, and it was upon this the fatal inflammation arose. The point worthy of consideration is, that under unfavourable circumstances of constitution, and accompanying disease of rapid growth, a large ovarian tumour, containing from ten to twelve quarts of fluid, was tapped six times without a single unfavourable symptom, by conducting the operation on the principle above explained.—*Dub. Hospital Gazette, Jan.* 1, 1856, *p.* 353.

140.–ON THE USE OF POTASSIO-TARTRATE OF ANTIMONY IN THE FORM OF ENEMA IN OBSTETRIC PRACTICE.

By Dr. James Young, Methven.

[In a primipara, aged 31, and of full habit, the pains had been strong and frequent for six hours, the os uteri was thin, hard and unyielding, and the external parts contracted and tender; blood was taken from the arm, Dover's powder given, and fomentations applied, but without any beneficial effect.]

Ergot was inadmissible under such circumstances. Reasoning from analogy on the effects of tartar emetic as a local irritant, when employed in the form of lotion or ointment, I conceived that temporary local stimulation of the uterus might be induced more directly from the rectum than through the medium of the stomach, and that subsequent relaxation might be produced in the surrounding parts, without the production of nausea and general prostration. One grain of tartar emetic dissolved in six ounces of warm water and soap was given in the form of enema, not so warm as when given for the purpose of clearing out the bowels, that it might be longer retained, and to avoid being deceived by the relaxing effects of heat. One hour after the enema was given, there was a decided improvement on the rigid os

uteri. The vagina became soft and secreted mucus freely. The os uteri became thicker and softer in the edges, and the external parts began to relax, and dilate. At the end of one hour and twenty minutes after the antimonial enema was administered the delivery was easily accomplished.

Encouraged by the result of this case, I selected for after-experiment primiparæ, particularly the robust and plethoric, where most difficulty was to be anticipated.

In eight cases where the pains were weak, and the parts unyielding, it was of great benefit in quickening the pains, relaxing the parts and expediting delivery, saving much suffering and protracted attendance.

It can then be used with safety in the early stages of labour, although the os uteri be thin in the edges and the soft parts firm and contracted. In multiparæ, when the parts are normal, the os uteri dilating slowly, and the pains weak, it will sharpen the latter, and thus shorten the duration of labour. Flooding did not occur in any case, nor was nausea or vomiting more troublesome than in the average of ordinary deliveries. In one case (multiparæ) there was pain in the abdomen after the placenta was removed, but not more than is often met with in ordinary after-pains. A cup of good tea was given to the mother as an antidote, and at the same time to refresh her. Being a considerable distance from my residence I left an opiate diaphoretic to be taken if the pain in the abdomen should return. On my next visit I was told that it was not necessary. None of the cases required any particular treatment.—*Edinb. Med. Journal, Jan.* 1856, *p.* 645.

141.—ON THE DURATION OF PREGNANCY.

By Dr. W. Tyler Smith, Physician-Accoucheur to St. Mary's Hospital, London.

[This is one of the most interesting subjects among the yet unsettled problems in obstetrics. According to one view, the uterus is excited to expel its contents by the maturity of the fœtus. Upon a second hypothesis, the gravid uterus is ruled by the catamenial periodicity, and labour comes on at what would have been a catamenial period. The late Dr. Merriman made a very careful investigation into the duration of pregnancy; he reckoned from, but without including, the last day of the last catamenial period, and he gives a table of 150 mature births calculated in this manner.]

Of these,—

5	were	delivered	in the 37th	week.
16	„	„	38th	„
21	„	„	39th	„
46	„	„	40th	„
28	„	„	41st	„
18	„	„	42nd	„
11	„	„	43rd	„

This variation is very considerable, and the question suggests itself —In the case of fifty-seven women who carried the ovum beyond the fortieth week from the last menstruation, was the gestation protracted beyond the usual time, or was it that conception occurred one, two, or three weeks after the last catamenial appearance? To these questions we shall have to revert hereafter. Dr. Murphy has given a table of 182 cases, in which the results were somewhat different from those obtained by Dr. Merriman. In Dr. Murphy's cases, the numbers delivered in the 40th and 42nd week were equal, twenty-five in each week; while in the 41st week, thirty-two labours occurred. The late Dr. James Reid, in an elaborate essay on the Duration of Human Pregnancy, begun in 1850, and completed in the 'Lancet,' in 1853, gives a table of the duration of pregnancy in 500 cases, calculating from the last day of menstruation. Of these,—

23	were	delivered	in the 37th	week.
48	,,	,,	38th	,,
81	,,	,,	39th	,,
131	,,	,,	40th	,,
112	,,	,,	41st	,,
63	,,	,,	42nd	,,
28	,,	,,	43rd	,,
8	,,	,,	44th	,,
6	,,	,,	45th	,,

These results prove, as in Dr. Merriman's table, that calculating from the last day of the last catamenial period, considerable variations in the duration of pregnancy occur. Is there more regularity in cases where the duration of gestation, or the date of the occurrence of labour, is calculated from the time of a single coïtus? Before entering upon this topic, it must be premised, that in the case of the catamenia, frequent mistakes are made by the most careful women respecting the time of its last appearance. Errors, intentional or unintentional, are still more likely to occur in fixing the time of the coïtus which has resulted in impregnation. Many of these cases occur in unmarried women, in whom there is a very constant tendency to declare that the fruitful coïtus has been a solitary one. Dr. Reid, in the paper referred to, collects forty-three instances of conception after single coïtus, all of them resting upon testimony as credible as can be obtained in these cases.

260	days	after single	coïtus, delivery	occurred in 1
263	,,	,,	,,	1
264	,,	,,	,,	2
265	,,	,,	,,	1
266	,,	,,	,,	2
270	,,	,,	,,	1
271	,,	,,	,,	2
272	,,	,,	,,	3

273	days after	single	coïtus,	delivery occured in 1
274	,,	,,	,,	7
275	,,	,,	,,	2
276	,,	,,	,,	5
278	,,	,,	,,	1
280	,,	,,	,,	3
283	,,	,,	,,	
284	,,	,,	,,	1
286	,,	,,	,,	1
287	,,	,,	,,	
291	,,	,,	,,	1
293	,,	,,	,,	2
296	,,	,,	,,	1
300	,,	,,	,,	1
				43

Thus it will be seen from this table that the average duration of gestation, reckoning from a single coïtus, is about 275 days. But in this mode of calculating the term of gestation, variations quite as great as those which occur in calculating from the catamenial periods, are met with. Dr. Reid, who wrote with a desire to show that the duration of pregnancy should be calculated from the time of impregnation, rather than from the last menstruation, was obliged to conclude as follows:—"If we allow of a range of from two to six days after menstruation as elapsing probably before conception takes place, it will then appear that about the thirty-ninth week after impregnation is more probably the ordinary duration of pregnancy, and this will coincide with the results of the table taken from cases of single coïtus." This means that we can calculate as well from the date of the last catamenia, as from the date of conception, but that in one case we must reckon thirty-nine, in the other forty, weeks. Upon whichever basis we make the calculation, it is proved that the duration of gestation varies considerably, within certain limits, and we must look to other evidence than that derivable from such tables, to show the real cause of the termination of pregnancy, and the occurrence of parturition. In animals, where the date of coïtus can be ascertained with greater accuracy than in the human female, the same variations in the time between impregnation and parturition in different females of the same species are found to exist. Thus the chief facts educed from these statistical data are, that, in a large proportion of cases, gestation terminates at a certain time, within the limits of a few days, and that this time bears pretty nearly the same relation to the catamenial dates, as to the dates of fruitful coition. Dr. Reid's is the largest collection of cases of conception from single coïtus which has been made, and the result yields the 275th day as the average time for the occurrence of labour. In the calculations from the catamenial dates, Dr. Reid's cases give the same result as those of Dr.

Merriman, the average time of the coming on of labour being the 40th week from the termination of the catamenia. If we get two cases of pregnancy in women in whom the catamenia appeared at the same time, the date of parturition may vary within certain limits. The same variation occurs in the cases of two females to whom impregnation occurred at the same time. If we look to the results obtained from the observations made upon comparative gestation, the same variation of the duration of pregnancy, as calculated from the date of intercourse, is found; and in animals the utmost accuracy as regards dates can be procured. Baron Tessier found that the average duration of pregnancy in 160 cows was nine months and ten days; but of this number 68 went beyond the 280th day, in 20 gestation lasted 300 days, and in 5 instances it was protracted to 305 days. The late Earl Spencer had the duration of gestation accurately noted in 764 cows. Pregnancy lasted on the average 285 days. In 8 cases only was this period exceeded by more than 12 days, and only one went 18 days beyond this time. These results differ somewhat from those of Tessier, but there are no grounds for questioning the accuracy of the observations in either case. Other observers have found the same variations in the gestation of the cow. Similar variations have been observed in the gestation of mares, and in elephants; and in the smaller animals, where gestation lasts a shorter time, notable variations in the time of the coming-on of parturition are found to occur. The last hypothesis respecting the variable duration of pregnancy is that advanced by Dr. Clay, of Manchester, who argues from cases which have occurred in his own practice, and the facts known respecting the duration of gestation in animals, that the younger the parent the shorter is the term of gestation. Dr. Clay believes that the ages of both parents influence the duration of pregnancy; but dwells particularly upon the influence of the mother.

There is a class of cases not hitherto noticed, by which the duration of pregnancy from the time of coïtus may be ascertained with considerable certainty. In 1851. Mr. Coleman, of Surbiton, drew my attention to the following circumstance:—Two ladies, patients of his, were married on the same day, and both were delivered within ten hours of each other. The marriages took place on the 7th of May, 1850, and one was confined on the afternoon of February 8th, 1851, and the other at two A.M. on the 9th, or 276 days from the date of marriage. Both had menstruated a few days before marriage. I have collected a good many cases of this kind, and they show that in the majority of those in whom labour occurs within the forty-first or forty-second week from marriage, the deliveries occur before, rather than after the 280th day from marriage. It is usual for marriages to take place shortly after a catamenial period, and the inference is, that in these cases impregnation must have occurred within a few days after marriage. Such cases tend to confirm the table of Dr. Reid, in which the average duration of labour was 275 days from the date of

coïtus. They do not, however, bear distinctly upon the determining cause of labour, and probably no mere statistics will ever settle the question. I now proceed to state the arguments in favour of the maturity of the ovum as the exciting cause of parturition.

Those who consider the maturity of the fœtus to be the cause of labour, point to the periodicity observed in the growth or flowering of plants, the separation of ripe fruit from the stalk, the leaf from the stem, the regularity with which the young of birds are hatched from the shell, the regular appearance and shedding of the teeth, and similar phenomena of growth and development, as favouring the idea that the fœtus separates from the womb, and excites the phenomena of parturition, in consequence of an inherent periodicity occurring as part of the development of the embryo. Dr. Carpenter refers to the placenta as the organ upon which the contraction of the uterus depends. He draws an argument in favour of this opinion from the phenomena of superfœtation, in which one child is detached from the uterus, a second remaining undetached, apparently in consequence of the immaturity of the placenta. Dr. Simpson has advanced the opinion, that "the loosening or decadence of the membranes and placenta from the interior of the uterus constitutes the determining cause of parturition, and that this loosening, or decadence, is itself the result of the effete degeneration of the structure of the decidua towards the full term of pregnancy." In the observations of Lord Spencer, it was found that gestation with males had a tendency to continue a few days longer than gestation with females. There is a popular belief that this occurs in the case of males in the human subject. In our fishing towns, where the dates of the absence of the husband are known, it is said that when gestation is prolonged beyond the usual term, a boy is expected, and that this expectation is generally fulfilled. Lord Spencer also found that cows in calf by a particular bull had a tendency to go a few days longer than those impregnated by other bulls of the herd. Those who oppose the view that the catamenial dates rule the duration of pregnancy, ask why parturition should occur at the tenth rather than at the eleventh, or any other menstrual period? But this may be replied to by other questions,—Why, for instance, should the catamenial period, as the rule, consist of twenty-eight days? or why should puberty come on at a particular age? The only answer is, the fact, that these particular periodicities do occur. In animals the periodicities of œstruation are little known, particularly in the wild state, but it is asserted that the larger animals do not œstruate sufficiently often to render it possible that in their case the duration of gestation can be a multiple of an œstrual period.

There is one point which has already been adverted to in connexion with menstruation, and which is supposed to militate against the ovarian theory of the cause of labour. As the rule, we have seen that the menstrual periodicity recurs every twenty-eight days; but in some women the period returns a day or two earlier or later than this with

considerable regularity. Others are regular every fortnight, or every three weeks; or the period returns only every five or six weeks. What multiple of the catamenial periodicity is observed in such cases? I have carefully noted all the cases I have met with of this kind, and I find in such women the duration of pregnancy is more irregular than usual. The future collection of such cases will be very valuable in elucidating the true cause of labour, far more so than cases in which the last date of menstruation and the occurrence of a single coïtus are recorded. It is said by some who oppose the ovarian theory, that if the ovarian or catamenial periodicity ruled the coming-on of labour, the date of parturition should always be exactly 280 days from the last menstruation. This is hardly a valid objection, inasmuch as in the most regular females, the catamenia often appear a few days before, or a few days after, the expected time, yet no one on this account refuses to accept the ordinary monthly periodicity as the rule amongst women. The irregularities in the duration of gestation are certainly not greater than the irregularities observed in menstruation.

The argument in favour of the ovarian influence, as a determining cause of labour, and as regulating the duration of pregnancy, has now to be stated. It is allowed by all observers, that labour has a tendency to occur, and does occur, in a great proportion of cases, in the fortieth week from the last mentruation; and it is equally allowed, that impregnation has the tendency to happen just after the catamenial period. It is also made out by the record of a considerable number of cases in which a single coïtus occurred, that gestation lasts, on an average, about 275 days from the actual date of impregnation. These data make the average duration of pregnancy approach 280 days from the last catamenial period, so that the time between the the last catamenial period and the occurrence of parturition is, on the average, very nearly a multiple of a single catamenial period. This is a curious coincidence, even if it were proved that the uterine function of parturition was quite independent of the ovarian influence.

But we know that the uterus performs some of its most important functions under the influence and control of the ovaries. It is allowed, even by those who deny the influence of the ovaria upon parturition, that the catamenial function is ruled by the ovaria, that the ovarian phenomena may occur without menstruation, but that menstruation never occurs without the influence of the ovaria. It is admitted by almost, I think I may say, all, practical accoucheurs, that the influence of the ovaria are felt during pregnancy, that women feel uneasiness at the catamenial dates, and are more liable to abort at these times than at others. This is particularly the case with women who have suffered from dysmenorrhœa previously to pregnancy. In certain cases of extra-uterine gestation, as, for instance, in abdominal pregnancy, the development of the fœtus has frequently gone on to the usual limit of pregnancy, when violent pains, as of labour, and contractions

of the enlarged uterus, have come on. Dr. Ramsbotham observes on this point: "It is a curious circumstance in the history of these cases, that if the child should live till the term of gestation is completed, as soon as that time has expired, the uterus takes on itself expulsive action, which is attended with pain similar to the throes of labour; and, during these pains, the deciduous membrane is expelled from the cavity with more or less sanguineous discharge." Cases have been not unfrequently met with in which the ovum has been blighted in the middle part of pregnancy, and in which the decidua and chorion have been diseased; but the mother has carried the diseased ovum for a considerable time, or to the natural limit of gestation, when the molar or degenerated ovum has been expelled. There is another class of cases in which twin gestation is proceeding; but one ovum dies, yet the uterus is not excited to contract, but the dead and living ovum go on to the full term. In cases of superfœtation, when one living child has been born, and birth has been given to the second some time subsequently to that of the first, I have found that there is a tendency to some multiple of the catamenial period in the interval between the birth of the two children. Dr. Fleetwood Churchill has given an account of the three most remarkable cases of superfœtation on record; and I proceed to an analysis of these cases, quoting the words of Dr. Churchill:—

"In the 'Recueil de la Societé d'Emulation,' there is the case of M. A. Bigaud, of Strasburgh, aged thirty-seven, who was delivered of a living child on the 30th of April. The lochia and milk were soon suppressed. On the 17th of September of the same year (i.e., about four months and a half after the first delivery) she brought forth a second apparently mature and healthy child." The first labour occurred on the last day of April, so that we have the thirty-one days of May, thirty days of June, thirty-one days each of July and August, and seventeen days in September, in all one hundred and forty days from the first to the second birth, or exactly five catamenial periods, $5 \times 28 = 140$. In a case related by Desgranges, of Lyons, to continue the account of Dr. Churchill, "the woman was delivered on the 20th of January, 1780, of a seven-months' child, and on July 6th, 1780, five months and sixteen days after the former birth, she gave birth to a second, which had apparently reached its full time." In this case we have eleven days in January, twenty-nine in February (it being leap-year), thirty-one in March, thirty in April, thirty-one in May, thirty in June, and six in July, between the two births, in all one hundred and sixty-eight days, or precisely six catamenial periods, $6 \times 28 = 168$. The third case noted by Dr. Churchill is as follows, from the account of the late Dr. Maton, in the fourth volume of the "Transactions of the College of Physicians;" — "Mrs. T——, an Italian lady, but married to an Englishman, was delivered of a male child at Palermo, Nov. 12th, 1807. On the 2nd of February, 1808, not quite three calendar months after the preceding accouche-

ment, she was delivered of a second male infant. Dr. Maton assured Dr. Paris that 'both the children were born perfect;' the first therefore could not have been a six-months' child." If we include the day on which the first child was born, the time between the births amounts to eighty-three days, or within one day of three periods of twenty-eight days. In these cases it is impossible not to recognise the close adherence to the ovarian periodicity, and it is difficult to imagine that this could be a mere coincidence. All such facts militate against the supposition that the irritation of the uterus by the mature fœtus and its membranes induces labour; and support the view that it is excited by extra-uterine and ovarian influence. There is also another class of facts which tell against the hypothesis that labour depends solely upon the maturity of the fœtus and the placenta and membranes, and as a consequence in favour of the ovarian periodicity. Instances are frequently met with in which the placenta becomes prematurely mature and caducous, or affected with degeneration, and the child dies in utero shortly before birth. It is well known that in certain women this happens many times in succession, the placenta becoming ripe, and positively unfit for the performance of its functions, without exciting the uterus to expel its contents. It is difficult or impossible to account for such cases on the supposition that the mature ovum excites the uterus to the efforts of labour. It is not that there is any special adhesion of the placenta and membranes to the uterus in these cases; for if the fœtus lives in a feeble condition up to the time of labour, it separates from the uterus with the first pains and causes the death of the child. On the other hand, labour comes on just as regularly in cases in which the placenta has adhered so firmly to the uterus, in consequence of inflammation, as to require mechanical detachment after labour.

In 1850, I performed some experiments, with a view to determine the possibility of exciting the uterus to contraction by irritating the ovaria. In these experiments I had the valuable aid of the late Mr. Henry Smith, who assisted Dr. Marshall Hall in his great course of experimental inquiry. We found that in gravid rabbits chloroformed, and with the abdomen laid open, irritation of the ovaria by galvanism, a heated needle, or pinching with the forceps, excited distinct contractions of the uterus and vagina. In the rabbit at the middle period of gestation, after a few contractions of the parturient canal had been excited artificially by irritation of the ovaria, the intermittent contractions of ordinary parturition went on until the fœtuses were expelled, artificial parturition being thus excited by ovarian irritation. Berthold experimented upon animals during gestation by extirpating the ovaria, and found that this operation invariably led to abortion. I have heard that Dr. Simpson a few years ago performed some experiments with a different result from those of Berthold, but I believe those experiments

have not been published. In my work already referred to, I have shown that in many of the lower animals, ovulation and œstruation are going on at the time of parturition, and that many of them admit the male, and conceive again on the same day that the uterus has been emptied.

I have thus advanced, and I trust impartially, the arguments and facts for and against the theory of the ovarian cause of labour, which I believe I was the first to propound. I have for many years taught that the ovaria, acting at or near the tenth period from the time of the ovulation which has ended in impregnation, excite in the uterus those changes which lead to the expulsion of the ovum. I have also compared the show which accompanies parturition, and the lochial discharge which follows it, to the menstrual discharge. It has appeared to me, that the changes in the uterine portion of the membranes are similar to the changes which occur in menstruation, and that the contractions of the uterus resemble those more imperfect contractions which occur in many women at the catamenial periods, and which we do not hesitate to refer to the ovaria. I believe there are some facts which do not admit of explanation upon the supposition that the cause of labour depends on the maturity of the ovum; as for instance, the occurrence of uterine contractions at the end of gestation in cases of extra-uterine fœtation. I believe, on the contrary, that the facts which appear to militate against the ovarian theory, most of them admit of explanation.

In a practical point of view, we may consider that the average duration of pregnancy is about 280 days from the date of the last catamenia, or about 274 or 275 days from the time of coïtus, when this can be ascertained. As the date of fruitful intercourse can only be known in rare and exceptional cases, we are compelled to date from the last catamenia,—the point which, from time immemorial, has been the foundation of the calculations of women and their attendants. I constructed the Periodoscope upon the data that conception generally occurs a few days after the completion of a catamenial period, and that labour may be expected on some day of what would have been the tenth period, had pregnancy not intervened. I have now for some years used this instrument in practice, and found the results generally correct. It is at the same time a mode of calculation and a diagram of pregnancy.

Those who calculate from the last menstruation, and those who date from conception, may equally use the periodoscope. The cases in which the date of fruitful coïtus can be known are rare, and for practical purposes the few days succeeding the last menstruation may be taken as the date of that event.—*Lancet, March* 29, 1856, *p.* 331.

MISCELLANEOUS SUBJECTS.

142.—ON DILUTION AS A PRINCIPLE IN THERAPEUTICS.

By Benj. Bell, Esq., Edinburgh. (Read before the Medico-Chirurgical Society.)

[In the administration of remedies of a metallic nature, we may err in not having them sufficiently diluted. Our purpose should be to gain ready entrance for them into the blood: take for example iron. We know that the entire blood of an adult does not contain more than 30 grains, and that this is deficient in anæmia. But what use can there be in giving such large quantities when so little is required? Our doses, then, ought to be small in quantity, and amply diluted. We may learn the same lesson by examination of medicines prepared for our use in the great laboratories of nature. The famous spring at Pyrmont contains about half a grain in the pint of water; that at Tunbridge Wells only about one-third of a grain; the same also in the bromine and iodine springs of Kreuznach; they exist under the same condition of remarkable dilution. But we cannot doubt their virtue in glandular swellings and scrofulous diseases. May we not then, take a hint from nature, and prescribe our metallic preparations in smaller doses and largely diluted?]

Of late years, I have seen reason to believe that all the benefit derivable from certain metals, as remedial agents. may be secured by comparatively small doses, provided that they are sufficiently diluted. I have seldom trusted to what could be called very minute doses; but so far as my observations go, I have a strong impression that, within certain limits, we do not increase the efficacy of such medicines by adding to the quantity prescribed. For example, eight or ten drops of the muriated tincture of iron in a large glassful of water, will, if useful at all, do as much good to our patient, as double or treble the quantity. And a similar remark applies, in my opinion, to the iodide or bromide of potassium, a single grain, or at most two of either, in a glass of water, being capable of effecting all the benefit of larger doses. We have already seen that the natural springs of world-wide celebrity present these ingredients in the proportion of one-third of a grain to sixteen ounces, and therefore we shall probably find, upon more extended trial, that corresponding doses of our pharmaceutical preparations, similarly diluted, will answer every purpose.

It may be observed, in passing, that although no strictly analogous argument, furnished by the chemical composition of natural springs, can be urged in regard to the administration of antimony, the principle of dilution is probably no less applicable to that important remedy. Without venturing to speak very dogmatically on the subject, I have a pretty strong conviction that we both increase its remedial power and lessen its tendency to cause sickness by diluting our antimonial solution. Many practitioners suppose, that without the production of nausea, we miss our object in subduing pulmonary inflammation, the principal disease for which that metal is prescribed; but I doubt the soundness of this view, and am inclined to think that every object may be gained without sickening our patient, just as iron and mercury can produce *their* curative effects without the former causing headache, or the latter salivation. Our aim should be to bring the antimonial into contact with the capillaries of the inflamed part, and this, probably, will be best promoted by presenting it in a form fit for immediate absorption into the circulating fluid. When this is attended to I find it seldom necessary to give more than the sixteenth or twenty-fourth part of a grain of tartrate of antimony in successive doses.

Another *a priori* argument, in favour of this practice, may be adduced. Unless a metallic medicine be administered in a state of proper dilution, *that condition* will be secured by the secretion of more or less fluid within the stomach itself, in order that the foreign matter may be in a fit state for being taken up and appropriated by the blood. But it is evidently desirable that this secreting process should be kept within as narrow bounds as possible, in every case standing in need of tonic remedies, and therefore, if it can be rendered unnecessary, even in part, by previous dilution *ab extra*, we secure an advantage for our patient. If however, we still adhere to large doses of the active ingredient, it is obvious that, in order to effect the necessary dilution, we must increase the entire quantity of liquid so enormously as to oppress the stomach, and derange the digestive process.

Other advantages of moderate doses, largely diluted, taking their efficacy for granted, will be readily admitted; for besides being less hurtful, it may be, to the teeth, they are also less unpalatable and better adapted on that very account for being taken and digested with the food, a point, the importance of which has been long fully recognized by practical men. That this last advantage is not imaginary, may be gathered from our familiar experience regrading the chloride of sodium. Mixed with the food at meals, although useful in helping digestion, it has no aperient action; but the same quantity dissolved in water, and swallowed when the stomach is empty, before breakfast, will almost certainly open the bowels. In the former case, it is absorbed gradually in company with the food; in the latter, being presented too abruptly and strongly to the fastidious capillaries of the portal system, it is rejected by them, and hurried onwards through the

canal, from convolution to convolution, and hence its qualifications as a purgative. But, if the solution be a concentrated one, it will probably never reach the bowels, but act as an emetic, and be rejected at once from the stomach. And cases are met with, in the annals of toxicology, where death itself was occasioned by large and irritating doses of common salt. Supposing it, however, to act as a purgative, the explanation of its action given seems preferable to the *endosmosis* theory, which appears to be too mechanical, and ignores entirely the vital affinities and endowments so conspicuous in the living body. We have supposed the solution of chloride of sodium to be moderately concentrated, like sea-water, or in the proportion of about a drachm to four ounces; but, if we double the allowance of water, we shall probably find that the action is no longer purgative, but diuretic. The salt has entered the circulation, and will be eliminated by the kidney.

It may be objected, perhaps, to the principle we are advocating, that it takes for granted that the whole of the medicine swallowed is absorbed, and received into the blood, whereas, allowance should be made for a great part of it passing through the alimentary canal unchanged, and more, therefore, ought to be administered than we can expect the system to appropriate. That this superfluity does exist, when large doses are given, we have already suggested, and also that it is probably a source of injury to the patient; but the likelihood of such being the case, is obviously much less when the dose is small and well diluted. Moreover, we are very apt, I suspect, to over estimate the quantity of any foreign substance which is needed, in order to act upon the human body.

I have repeatedly seen so small a dose as the eighth of a grain of extract of belladonna taken into the stomach of a young person, cause full dilatation of the pupil. Now, if we only consider how extremely minute must be the portion even of this very small dose, when circulating through the blood-vessels, which could come into contact with the nerves of the iris, we may form some conception of the susceptibility and delicacy of our frame. To take another illustration, let us consider the remarkable efficacy of the muriated tincture of iron in erysipelas, or in acute desquamation of the *tubuli uriniferi* following scarlet fever. An adult is labouring under the former of these complaints, with much febrile disturbance, as indicated both by the hot dry skin and the frequent bounding pulse; we administer ten drops of the tincture every two hours, and after two or three doses, as I have often seen, the symptoms give way, the skin becoming moist and cool, the pulse slow and soft. A *few* grains of iron, at the very most, have mingled with the circulating blood, and of these a mere fractional portion has reached the congested capillaries of the inflamed region, and occasioned the favourable change, and in this way, a comparatively small dose of a substance confessedly foreign to the system, comes to fulfil the purpose we have in view, with all the efficiency of a larger quantity.

A boy of ten years, we shall suppose, who has recently passed through an attack of scarlet-fever, is observed to have œdema of the eyelids, a furred tongue, and full febrile pulse. His urine is of a dingy colour; it deposits a dark sediment, and is scanty and albuminous. Five drops of the tincture of iron in a glass of water, are administered every four hours; a speedy improvement commences, and in two, or perhaps three days, the symptoms are entirely gone.

Such facts, besides enforcing the principle we have been inculcating, should teach us to deal tenderly at all times with an organization so finely constituted, and to administer our remedies under a more settled conviction that, if potent for good at the right time, they may also be potent for evil, when the case and the occasion are not favourable.

One may express himself in this manner, without verging in the very least, towards the credulity of those persons who profess their faith in the power of infinitesimal doses. It is one thing to recommend half a grain in preference to five, and a very different thing to stand up, with unabashed countenance, for the millionth or billionth of a grain. The human mind is baffled in forming even a conception of such infinitesimal quantities; and, therefore, they may be placed in a category by themselves, for the use of those who take pleasure in believing every thing that ordinary people are compelled to doubt. But is there no truth in the allegation, that some of our large doses of remedies, intended to enter the circulation and mingle with the blood, must startle and stagger many reverential students of the human frame and functions, and so create, it may be, a hurtful reaction in favour of homœopathy, and other kindred eccentricities?

I would venture to suggest, that some topical appliances—those especially of a discutient nature—may be rendered more efficacious and useful, by attending to the same principle of ample dilution. For example, the most efficient mode by far in my experience, of employing iodine locally, is a solution, consisting of two grains of iodide of potassium and one of iodine, in an English pint of water. It must be used warm, as a fomentation to the affected part, by means of a sponge, twice or thrice a-day, for five or ten minutes at a time. In cases of glandular tumour and of fibrinous exudation into the cellular tissue; in chronic enlargement of the testicle or epididymis; in short, in all that class of disorders, where iodine or mercurial ointment would seem to be indicated, I have often found it remarkably efficacious. The warmth of the application renders it more agreeable to most patients, than if it were cold or unctuous, and, at the same time probably, increases its power by relaxing the pores, and so favouring absorption. It seems to be much preferable to the tincture of iodine painted upon the surface—a favourite remedy with many. The latter certainly does good in some cases, but we may doubt, I think, if it produces its beneficial effects in the manner usually attributed to iodine and its compounds. It is a strong stimulating fluid, and sometimes occasions a good deal of local suffering; so that, when attended by favourable

results, it probably resembles in its action a common blister, or the croton-oil ointment, and relieves inward congestion or chronic inflammation *indirectly*, by its power as a counter-irritant, and not *directly*, by hastening the process of absorption. The distinction is not unimportant; because some swellings, of inflammatory origin, may reasonably be expected to give way under a system of counter-irritation; while other growths, of a slower and colder constitution, will be more amenable to a treatment less active and heroic.

Another illustration of the same principle seems to be afforded by the outward uses of croton oil. When employed in a form tolerably concentrated, it induces, as we all know, an eruption of minute vesicles; but when mixed with a large proportion of olive oil, and rubbed over an extensive surface, such as the abdomen, it sometimes shows its power as a purgative, in the most unequivocal manner. One case in particular, that I attended with the late Dr. Thatcher, occurs to me, in which this treatment was eminently successful. A young gentleman seemed to be dying of obstruction in the bowels. As all the ordinary means of relief had been exhausted, and circumstances forbade the farther use of internal remedies, a liniment, composed of one part of croton oil and twenty-four of mingled olive and camphorated oil, was used as an embrocation to the belly; and very speedily, and in consequence, as I believed at the time, the peristaltic action downwards was restored, and the obstruction overcome. Of course, we may have mistaken in this, as in other cases, the *post* for the *propter hoc;* but such facts seem to suggest the propriety and desirableness of new experiments in the same direction.

The spiritus terebinthinæ is another local remedy which we may probably employ with advantage, in a less stimulating shape than we are in the habit of doing. This has been suggested to my mind by witnessing the beneficial effects of small doses of turpentine in certain forms of iritis, and in rheumatic ophthalmia. In exercising these curative effects upon textures so remote from the stomach, the medicine must be supposed to enter the vascular system, and to modify the blood by stimulating one or more of the organs of excretion; and it is reasonable to infer, therefore, that the well-known remedial power and efficacy of terebinthinate embrocations in certain chronic forms of muscular rheumatism and neuralgia, *may* depend very much upon a similar therapeutic action. And on this supposition, we should take care that the local remedy is not presented in a form too stimulating, our object being, not so much to cause counter-irritation by it, as to secure its absorption by the integuments covering the seat of pain.—*Edinb. Med. Journal, Jan.* 1856, *p.* 632.

143.—*Formulæ for the Administration of Chloroform.* By M. Dannecy.—M. Dannecy employs oil to dissolve the chloroform. The formula he uses is as follows:—Take of pure chloroform, 2 grammes;

oil of sweet almonds, 8 grammes; gum arabic, 4 grammes; syrup of orange flowers, 30 grammes; distilled water, 60 grammes. Mix the oil with the chloroform, and make with the mixture an oily draught, in the ordinary way. When gum alone is employed to suspend chloroform in a draught, separation of the latter sooner or later takes place; and where alcohol is used, as by many practitioners, in proportion of one part chloroform to four parts alcohol, an excitant is introduced which may not be desirable, and if the quantity of chloroform prescribed be considerable, this objection is a serious one. The advantages which M. Dannecy sees in his formula are,—1. That a perfectly homogeneous and stable mixture is produced, whatever be the proportion of chloroform prescribed; 2. That no excitant like alcohol is introduced into potions which are most frequently intended to be calmative; 3. That it dispenses with every kind of precaution on the part of the patient, or those who have the care of him in administering the remedy. He thinks, further, that the mixture of the chloroform with oil, without any detraction from the limpidity of the latter, is a test of the purity of the chloroform.

The Commission of the Société de Pharmacie, while admitting M. Dannecy's formula as rational, proposes the following:—Chloroform, 2 or 4 grammes; sugar, 12 grammes; gum arabic, 5 or 10 grammes; water, 100 grammes. The chloroform is added to the sugar in a mortar, then the gum is added, and lastly, by degrees, the water. M. Deschamps, in commenting on the several formulæ which have been suggested, considers that of the Commission as preferable both to that of M. Dannecy and of M. Wahu, who dissolved chloroform in three or four parts of alcohol, and then mixed it with a solution of gum, on the ground that submitting all patients to the action of much alcohol or oil is not a matter of indifference. It is true that, after a time, a whitish flocculent deposit takes place, but a little shaking restores the appearance of the mixture. M. Deschamps proposes another formula—viz.: Chloroform, 2, 4, 6, &c. grammes; syrup, 30 grammes; yolk of one egg; water, 150 grammes. Dilute the yolk of egg with the water, and strain; weigh the syrup, then the chloroform; add the strained liquor, and shake the whole together.—*British and Foreign Med. Review, Jan.* 1856, *p.* 238.

144.—*Fibrous Tumours connected with the Prostate.*—Prof. Fergusson states that an important circumstance connected with lithotomy is, that not unfrequently, in extracting the stone, and without any undue violence having been used, a portion of prostate gland would protrude before it. Formerly he had been in the habit of attempting to avoid the removal of such portions, but finding that no inconvenience resulted from the practice, he had latterly adopted the plan of always removing them. He thought they were probably tumours connected with the prostate, and not parts of the gland itself.—*Med. Times and Gazette, Dec.* 15, 1855, *p.* 610.

145.—*Mode of Administering Phosphate of Lime.*—The insolubility of phosphate of lime has led to its disuse by many practitioners. According to M. Küchenmeister, of Zittau, this objection is removed by uniting the phosphate with carbonate of lime, and then adding an acid, when a soluble combination and an useful medicine results. The proportions recommended are,—carbonate of lime, 8 grammes ; phosphate of lime, 4 grammes ; sugar of milk, 12 grammes. M. Küchenmeister sometimes adds from 1 to 2 grammes of lactate of iron, and directs three pinches of this powder to be taken at the commencement of a meal. The object of the addition of carbonate of lime is to favour the solution of the phosphate. Under the influence of the lactic acid or of the hydrochloric acid present in the alimentary canal, carbonic acid is disengaged, and renders part of the carbonate soluble. The sugar of milk is intended to furnish lactic acid. Finally, the author remarks that the presence of albuminates is necessary to determine the solution of the phosphate of lime, a condition which is present when administered with the food.—*British and Foreign Med. Chir. Review, Jan.* 1856, *p.* 239.

146.—ON THE APPLICATION OF STATISTICS, TO QUESTIONS IN MEDICAL SCIENCE, PARTICULARLY AS TO THE EXTERNAL CAUSES OF DISEASES.

By Dr. W. P. Alison, Emeritus Professor of Practice of Medicine Edinburgh.

[The knowledge of the external causes of diseases is that which leads most directly to their prevention. It is simply by the force of numbers that we have learnt how the poison of small-pox may be diffused, and that it may be disarmed of its power over the human body. So also with respect to the extension of another epidemic, the puerperal fever. We now possess information which enables us to predict that its propagation may hereafter always be prevented. The observations of Dr. Semmelweiss in the great lying-in hospital at Vienna, where upwards of 6000 births take place in a year, have unequivocally shown]

1. That this disease is, in fact, a case of the Diffuse inflammation or Erysipelas, attended with the same peculiarities in the extension of the inflammation, and in the nature of the effusion, and the same variation as to the nature of the accompanying fever in different epidemics.

2. That one immediate exciting cause of this form of inflammation, which may always be suspected when it prevails epidemically, is the *cadaveric* poison,—often evolved, during the decomposition of the human body, from whatever cause death may have taken place ; but during one stage of that decomposition only, viz., that early stage during which the *post mortem* inspections for the investigation of the cause of death are most frequently made.

3. That when this form of inflammation assumes the form of epidemic puerperal fever, the mode of its transmission from one patient to another, is by accoucheurs or nurses, themselves in good health, but to whose persons or clothes minute portions either of the *effluvia from others* already affected, or of this *cadaveric poison*, have become attached; and

4. That when the obvious precautions are taken, to prevent any persons to whom, in either of these ways, the poison can have thus adhered, from acting as accoucheurs or nurses until effectually purified, no "epidemic extension" of puerperal fever is seen.

It is seldom, no doubt, that this last proposition can be submitted to so searching a scrutiny, as in the year 1846, at the Vienna Hospital, under Dr. Semmelweiss, when the number of deaths, after these precautions were adopted, was diminished by no less than 400 in that hospital alone, and in a single year; but when it is added, that each of the propositions above stated is quite in accordance with observations made and recorded (although the bond of connection among them had unfortunately not been duly observed), in this country, whenever puerperal fever has been epidemic, whether on a large or small scale,—so that it would be easy to collect statistical evidence of the same kind from every such epidemic, wherever any record of the facts has been left, to establish each of these propositions,—the force of this statistical evidence becomes such as to justify the sanguine anticipation above announced.

Our information as to the mode of extension of the malignant Cholera, is, unfortunately, as yet less certain or precise; yet I think we may say it is so far advanced, that we may entertain a confident *hope* of its being very soon such as to disarm any epidemic cholera, in this climate, at least, of all its terrors.

I allude to that subject here, chiefly because I think it affords an example worthy of notice, or what I have already stated, as to the frequent misapprehension of the strength of evidence, simply empirical, or founded on statistics, which may often be obtained in inquiries of this kind.

I mentioned formerly in a paper on this subject, which I had the honour of laying before this Association at Birmingham, a *single case* which I saw in the year 1832, and which I have always maintained to have been sufficient, for any one who duly attended to the statistical evidence it afforded, to establish the proposition, that the disease is capable of propagation in this climate, by the intercourse of the sick with the healthy, without pledging us to any opinion as to the mode of communication, or as to the existence of other modes. Now that it is generally admitted, that the assertion then made was correct, the question for discussion now being (as stated by the editor of the 'British and Foreign Medical Review'), "*not* whether cholera is contagious or not, but *how often* it spreads *by the agency of human bodies* (i.e., by *contagion*), and how often without that agency," (Journal for

January, 1854, p. 298). I think myself justified in drawing attention to the grounds on which it was made ; and which, I still think, amply sufficient to establish that mode of communication, without, of course, excluding others.

The reason of this strong expression of opinion was, that the case furnished a remarkable example of the evidence which, according to what was formerly stated, a single *positive* fact may afford,—quite of the nature of the *instantia crucis*, when supported by a large body of *negative* observations. The anxious expectation of the disease in the town, in 1832, the careful division of the town into districts, and appointing of stations and medical men to each, and the number, zeal, and intelligence of these observers, were known to be such as to justify our saying, that this was the very *first* case of the disease which ever originated in Edinburgh or Leith, in a person who had not left the town ; and that for a time it was *an isolated* case, no other appearing for ten days, in a population of above 140,000 persons, many of whom were in circumstances, in all other respects at least, equally favourable to the appearance of Cholera, as this woman was ; —as the subsequent appearance of the disease in many of them, during nearly a year that the disease afterwards existed in Edinburgh, proved. If the poison producing this "*nova pestis*," had no contagious property, this woman was not more exposed to it than any other of this large body of people ; but if it had that property—in whatever other way it might be communicated—she was undeniably and peculiarly exposed, as she was engaged in nursing her son, in a close confined room, who was ill of the symptoms of cholera, during the whole of the day preceding that in which she sickened and died; and he had passed the next preceding night in a house in Musselburgh, where patients in the malignant disease then were, and had been for weeks previously. Here, then, was a fair *instantia crucis*, to determine whether the transmission of the disease, from place to place, known to be at that time a frequent event, was or was not dependent on intercourse of healthy persons, with those previously sick of it; and the affection of this one person, who had that intercourse, contrasted with the non-appearance of the disease in the 140,000 was, as I maintain, *decisive* evidence.

Many cases, equally decisive, have since occurred, of which I have been informed, on the *first* appearance of a disease *previously unknown* in a town or district, carefully observed ;—*e.g.*, at Arbroath in 1853, where there was clear proof that the two first persons, of 15,000 inhabitants of that town, who took Cholera, "had just returned from Dundee, where they had visited persons ill of cholera ;" their affection, therefore, proves nothing as to the efficacy of intercourse with the sick, in exciting the disease, rather than merely visiting a particular locality ;—but the next, *six* who took it in Arbroath,—the *first six* inhabitants of that town who took cholera without leaving the town, had repeated and close intercourse with those already affected before

they took it; and the inference as to the contagious property is drawn, not from their taking the disease, nor even from their taking it at that time, and in rapid succession, but from their being *the only inhabitants* of Arbroath who took it, during the first week of its existence in that town;—*i. e.*, the positive evidence of the *six* who were known to be exposed to that cause, is supported by the *negative* evidence of the *fifteen thousand* who could not be shown to be, and the immense majority of whom certainly were not, so exposed.

I have great hopes that we shall soon have statistical evidence to establish a proposition which no other evidence known to us could justify our admitting, but which, if established, would not only reconcile most of the conflicting statements on this subject, but serve as a guide to almost complete security from any epidemics of this disease in future; viz., that the poison of cholera, *like other known animal poisons*, is developed during the decomposition of the animal matter, the appearance of which is most characteristic of the disease, —that which constitutes the "*rice water stools*,"—but only in a *particular stage* of that decomposition, not immediately after its formation in, or discharge from, the body; and again, not after the decomposition has gone to a certain length. All this can be proved only by statistics, but is quite susceptible of proof in that way. The last proposition above stated—that no poisonous property is attached to any part of a body dead of cholera, after a certain stage of decomposition has been passed, seems nearly ascertained from the number of instances in which dissecting-rooms have been supplied with bodies of persons dead of cholera, for many weeks together, without any of the students attending them being affected. That the peculiar matter of the cholera evacuations, during its decomposition, perhaps especially in dry air, has a peculiarly poisonous quality, was, I believe, first suspected by Liebig, and partly by the analogy of the poison already mentioned, causing erysipelatous inflammation and puerperal fever,—and also of the *sausage poison*, repeatedly observed on a large scale in Germany, which is developed during a certain stage of the decomposition of the animal matter of those sausages, and disappears when their putrefaction has so far advanced. That the cholera can be communicated to animals by inoculation with this matter of the peculiar rice water stools, has been sufficiently proved by the experiments of Dr. Lindsay in this country; and if a few more experiments shall give results similar to those of M. Thiersch, at Munich, I think we may assert that the proposition above stated, is *statistically* proved. "Dr. Thiersch collected the intestinal contents, or the evacuations, of cholera patients, and let them decompose under the influence of air and heat. From day to day he dipped into this matter pieces of filtering paper, which he dried, for subsequent experiments on white mice. Two of these animals at a time were exposed to infection for four days, by having a square inch of the filtering paper, thus prepared, moistened with water and mixed with their food. Each mouse took thus,

1-2000th gr. daily. The results were as follows:—The preparations from the matter during the first day of decomposition were *innocuous*. To this succeeded a period of from six to nine days, during which decomposition went on, and preparations from the matter in this second period of decomposition, caused disease in 30 out of 34 animals, and death in 12 of the 34. The symptoms were peculiar and characteristic. The hair fell off, the ears dropped, there was languor, then discharge from the bowels, first of white, then watery matter, the urine lost its smell, then was suppressed, the appetite became *depraved*, so that the animals would fill their stomachs with wool; there was no apparent sickness, but such tonic muscular contractions that they seemed dead sometime before death. On dissection, accumulation of blood in the vessels of the small intestines was invariably found, their contents *watery*, with *abundant epithelial flukes* (just similar to those found in persons dead of cholera); the cortical substance of the kidneys passing into fatty degeneration, the bladder empty, the blood and the contents of the intestines answering to the test of ready mixture with amygdalin, as in the cholera of man,—which will not appear in the healthy animal. To this a third period of decomposition of the matter under trial succeeded, in which these poisonous effects were very slight, or not observed at all."—(See 'Medical Times and Gazette,' Nov. 25, 1854.)

We have already a statement by Dr. Budd, of statistical observations made on villages in England, where the entrance of cholera appeared to be prevented by such expedients as these observations immediately suggest, for receiving the rice water evacuations of cholera patients on linen or cotton, and burying or burning, or otherwise effectually destroying their substance, during that period, thus indicated, after they have been passed, and before they have entered on the morbific decomposition; and we have sufficient statistical evidence of the importance of another measure,—which was first adopted, I believe, at Edinburgh in 1832, and has since been recommended by the Board of Health in London, and adopted in different places, although not so generally or satisfactorily as could be wished,—founded on the merely empirical statements I have made as to the communication of the disease from the sick to the healthy, and its apparent adhesion to particular, often very limited, localities, viz.,—the establishment of *houses of refuge*, for the reception of all inhabitants of houses or rooms which might become infected with cholera in any town; not themselves affected, nor required for the care of the first cases that might occur. Here such persons might be lodged in pure air, regularly fed, preserved from cold and from other (frequent concurrent) exciting causes of the disease, and treated with due attention to cleanliness, immediately on any symptoms of cholera showing themselves. The London Board of Health report, that they had information of 1691 persons taken into these houses of refuge, from rooms where there were patients in cholera,

and of these, only 33 became affected with cholera, and only 10 died. In cases of which I was myself informed, in Edinburgh, at Glasgow, and at Oxford, during different epidemics, 1010 persons were admitted from sick rooms into such houses of refuge, of whom 40 took the disease, and 15 died; whereas the experience of Dr. Hamilton, of Falkirk, of 251 cases of cholera appearing in 86 houses, where no such means of separation existed, gives only a fair idea of the extent to which successions of cases will often be observed, in confined air and dirty districts, possessing no such resource.

I am happy to say, that so far back as November last, having written to Dr. A. Smith, at the head of the medical department of the army, on the subject of the decomposition of the rice water stools, as the probable cause of the propagation of cholera, and of districts becoming *tainted* with the poison of that disease,—I was informed by him that he had directed the attention of the medical officers in the Crimea to the facts now stated, so that if the disease shall appear in a malignant form in that army, we may hope for at least accurate and truly statistical information as to the reality of that opinion.

Again, as to the Yellow Fever, so frequently becoming epidemic in the hot climates, although we cannot boast of having acquired information either as to the nature of its cause, the essential character of the morbid change it produces, or the power of any remedy over it,—yet by simply empirical observations, *i.e.*, by statistics, we have information to the following effect, as stated in reports in Germany and France, on inquiries conducted by order of those governments, on a large scale, and considered by committees containing the names of Humbolt and Dupuytren, that it is a disease *endemic*, almost exclusively, "in districts nearly on the level of the sea, never appearing beyond 48° of north latitude, nor without a previous temperature of 72°,—only in certain circumstances propagated by contagion," but when epidemic, always *confined strictly to certain localities;* so that the practical rule of immediately evacuating, *i.e.*, removing *all* the inhabitants of places where it is declared to exist, and has formerly prevailed, is *incontestible*, and "of such proved utility, as will always justify its vigorous execution."

Without dwelling farther on the effects of malaria, in this or any other climate, which we can only expect to be satisfactorily explained when pathology shall be considerably more advanced than at present, I may merely add, that such collections of facts have been made and are now frequently repeated, as to the places and circumstances in which it arises from the earth, and the laws according to which it extends and multiplies,—considered merely empirically or statistically,—as we may confidently expect to be successful in disarming this cause of disease likewise of its terrors, long before the

nature of the change produced by its action on the living body, or the rationale of any line of treatment of those who may be affected by it, shall become known.

The case of Epidemic Scurvy, resulting in different cases, as is now satisfactorily established, from different deficiencies in the diet habitually taken,—the efficacy, therefore, of different kinds of diet in counteracting this form of disease, — still more remarkably, the power of small quantities of vegetable acids in producing the same effect, and the extraordinary rapidity with which such changes of diet, and these acids, will produce their effect,—may also be stated as examples, on a large scale, and of the most satisfactory kind, of what is generally called the power of art over a most loathsome and virulent disease,—but in reality must be regarded, now and probably long after our time, as results obtained by simply empirical observations of the course of Nature, statistically arranged, fortunately facilitated by so many of the subjects being organised bodies of men ;—and which have distinguished the present age to a degree, which those who are not familiar with the medical writings of the last century will hardly conceive.

We have good reason to hope, that the inquiries now on foot as to the external causes of Scrofulous, or of what is now usually called tubercular disease, including pulmonary consumption,—an inquiry which we must perceive to be more complex, and in which the operation of various causes must be recognised,—will be effectual in pointing out the means of counteracting that tendency in a very large proportion of cases of persons liable to it,—simply on the principle of empirical observation, enlarged and arranged in the form of statistics, long before we shall have information as to the essential nature of the vital process, or mode of operation of the causes in question.

In illustration of this, I need only mention two facts, recently ascertained on so large a scale, that we have no doubt of their truth and importance, and which, even at present, may be said to be guides to successful practice in many cases only recently thought hopeless, although all that was previously known on the subject was certainly rather adverse than favourable to the supposition that they would ever be established. These are,—1. The good effect of cod-liver oil—if not of other animal oils, on many cases of tubercular disease, in their early stage—provided only that it can be retained on the stomach to the extent of an ounce and a half or two ounces daily; and, 2. The almost complete exemption of the inhabitants of the Faro Islands from tubercular disease, notwithstanding that their climate, as regards cold and damp, is exactly that which, in this country, has been thought most favourable to it.—*Edinburgh Medical Journal, Nov.* 1855, *p.* 385.

147.—ON THE PHYSIOLOGICAL AND THERAPEUTIC EFFECTS OF THE CHLORIDE OF AMMONIUM.

By Dr. Alexander Lindsay.

[Muriate of ammonia, or sal ammoniac, is a substance which is seldom given internally in British practice. It possesses considerable therapeutic power, and is extensively used on the continent, especially in Germany.]

Iodine, bromine, and chlorine are readily distinguished the one from the other; yet, in some respects, they are physically allied, and they are so closely related chemically, that they have been grouped as a family. Further, there is a marked similarity as regards the therapeutic effect of the salts, resulting from their union with metals. These considerations, coupled with the assumed nature of the basyl ammonium, would naturally lead to the conclusion that the action of the chloride, in diseased states, would be of a character similar and equal to others held in higher repute; my own experience of the salt has shown such to be the case.

It may be useful to refer briefly to the physiological actions of the medicine under consideration. A knowledge of these cannot, it is true, serve as a guide to its employment in disease, yet it will enable us to measure its influence on the system, and to conclude in a general manner as to its therapeutic action. For where a physiological change in any given case is not observed, but little alteration is to be expected in morbid conditions.

The information possessed regarding the actions of the chloride on the healthy body is very limited. Pereira's 'Elements of Materia Medica' contains all I have been able to glean on the subject. The statements there, however, refer to large doses; that author remarks as follows:—"Its local action is irritant. Its chemical influence is not very obvious. It dissolves mucus, but does not coagulate albumen. Weber tried the salt on himself. He took from ten to twenty grains for a dose, which he repeated at the end of an hour. The effects were a sensation of warmth and oppression in the stomach, headache, and increased desire of passing urine." So far as I am aware, the influence of medicinal doses, continued for a certain time in healthy individuals, has not been recorded. I was anxious to ascertain this, and have been aided in the inquiry by two intelligent pupils, who willingly agreed to subject themselves, along with me, to the action of the chloride. Daily, for a week previous to the experiment, the state of the appetite, the nature and amount of the food, the condition of the bowels, the frequency of the pulse, with the amount and density of the urinary secretion, were carefully noted. The medicine was then taken for a week, and similar observations recorded. The amount taken was in one case 18 grains per day, a second $13\frac{1}{2}$ grains, and the third 9 grains. These quantities were divided into three equal doses, and were swallowed dissolved in two ounces of water. No comparison of

the results was made till the observations were concluded. The following is a brief summary of these, from the notes now before me :—

On the second day after beginning the medicine, a buoyancy of the system was experienced that rendered ordinary pursuits a pleasure, and fitted body and mind for increased exertion. The uniformity of this result was the more remarkable as the experimenters represent types of the nervous, sanguineous, and lymphatic temperaments respectively. The feeling was least developed in the last. He employed the smallest dose. In all, the appetite was much improved. Where the smallest quantity of the salt was taken, the amount of food was doubled. The feculent discharges were in all much augmented. The mucous follicles of the intestinal tube seemed to be stimulated to a much increased secretion. In two, the force and frequency of the heart's action were diminished. The rate of the pulse in the gentleman employing the smallest dose was accelerated. In all, the chloride increased the urinary secretion. It cannot, however, be classed as a renal hydrogogue. The increase of fluid ranged from six to twelve ounces in the twenty-four hours. In the two cases, where the largest and smallest doses were used, it acted as a renal depurant, the excess of solids varying from 70 to 160 grains daily. In the other no change in this respect was noticed ; but it may be necessary to remark, that the effect on the bowels appeared to be greatest in the individual making use of the medium dose.

The cases in which I have employed the chloride of ammonium in practice have been limited to chronic diseases, such as result from inflammatory action, or where there is a local ailment existing as the expression of a dyscrasial condition. Particularly, I have prescribed the salt in cases of chronic bronchitis, in enlargement of the lymphatic glands, whether resulting from scrofulous disease or dependent on a syphilitic taint, in chronic skin diseases, and in cases of chronic rheumatism.

The chloride has been, I may remark, exhibited also in acute diseases ; in some forms of fever, and in the milder cases of pneumonia. Further, Dr. Watson, in his lectures, has testified as to its efficacy in certain forms of facial neuralgia ; and Dr. Ebden, in the 'Indian Annals of Medical Science' for April, 1854, states that it is a powerful and valuable remedy for the relief of neuralgic pain generally. He writes—"In facial neuralgia, tic douloureux, nervous headache and toothache, not excepting sciatica, and even in one case of neuralgic dysmenorrhœa, I have often given it, and been convinced, after a full trial, of its merits."

Of its therapeutic effects in acute diseases, I have no knowledge, nor have I prescribed it in neuralgic affections ; but, from what I have seen of its physiological action in small doses, I can readily believe that the quantities prescribed by Dr. Ebden must have had an important influence.

I commenced the use of the salt in morbid conditions of the pul-

monary mucous membrane, where the exuded (mucus) secretion was tough and tenacious. In such cases, its action was often remarkable, the exudate becoming speedily altered in quality and consistency. It has probably been from observing this effect that some have attributed to the chloride of ammonium qualities similar to the mercurial preparations. As liquefacients their influence is well known. On this account they are frequently employed. But in cases in which their use is contra-indicated, as frequently happens in chronic bronchitis, I I can confidently recommend that their place be supplied by the preparation under consideration, certain that if the case be well chosen, the benefit will soon be apparent, and equally certain that no prejudicial result will follow its employment. In this respect it differs from the alkalies or their carbonates, the prolonged employment of these disordering the digestive and assimilative functions, and ultimately producing a condition similar to scurvy, the nutrition of the body generally becoming impaired. It is very different with the chloride, its long-continued use never giving rise to symptoms of general cachexia. The testimony of many observers agree in this.

The efficiency of the ammonium salt, as a remedy in the cases noted, led me gradually to extend its use, and subsequent trials, frequently repeated, have shown that in cases of chronic rheumatism it often proves of great advantage. It is doubtless true we shall be occasionally disappointed. This however, happens often with our best remedies: but in those forms of rheumatic disease in which there is but little constitutional disturbance—those cases, in short, in which the iodide of potassium is found advantageous—the chloride may be given with every likelihood of benefit. In this affection, I have given the salt a very extended trial; but in recommending its use, I need scarcely hint that it is not to be depended on to the exclusion of those secondary means—warmth, frictions, &c., that form a part of any treatment we may employ. I have also tried the chloride in periosteal inflammation of a chronic character, and having a syphilitic origin. Here its advantages are not so apparent, yet it seldom fails to give relief, and in cases where the iodide of potassium had ceased to exert any apparent influence on the disease, the substitution of the chloride has been followed by a rapid cure.

In enlargement of the lymphatic glands, I have not had such an experience of the use of the chloride as enables me to speak with confidence of its action. Yet more or less benefit will follow its prolonged employment. In that variety of bubo aptly designated indolent, which so often exhausts all ordinary remedies, and frequently our patience, the use of the chloride often speedily effects its removal. I am in the habit here of applying it also externally. A strong solution being employed (℥ii to the ℥j.), lint is soaked in this, applied to the swollen surface, and covered with oiled silk. In such cases, the general treatment must not be forgotten. The state of the bowels must be watched, and, if need be, corrected, the diet employed being nutritious.

Carefully-applied pressure over the swelling is also a valuable auxiliary.

In another point of view, the chloride of ammonium has an advantage. It is cheap. This precludes the likelihood of intentional adulteration. Sometimes it is impregnated with iron, and, it is said, occasionally with lead. As regards the former, when present, it exists in such small quantity that it can in no way interfere with its action; and as regards the latter, any samples I have tested showed no evidence of its presence.

By writers on the Materia Medica, the dose of the chloride is stated to be from 5 to 30 grains. The quantity prescribed by me has varied from 5 to 10 grains, three or four times a day. Dr. Ebden, in the paper already noticed, states he employs from 25 to 35 grains in neuralgic affections, repeated at short intervals. I have never given the salt in such doses. His experience, however, accords with my own as to the effect on the system of the quantities I am in the habit of administering. This agreement was to me the more gratifying, as I was not aware of the existence of his paper till these remarks were nearly completed, and it adds to the confidence I have in urging the medicine on professional attention.

The chloride of ammonium may be administered in simple or medicated waters. Where there is evidence of febrile disturbance, small doses of emetic tartar may be advantageously added. I frequently prescribe it with some bitter infusion, as quassia, cascarilla, gentian, &c. In cases where an anodyne may be necessary, the solution of the muriate of morphia may be conjoined in appropriate doses. It need scarcely be added, that the alkalies with the carbonates, as also the nitric and sulphuric acids, are incompatible.

The preceding observations have been limited to a mere narrative of observed results. Any endeavour to explain the nature of the influence exercised by the chloride over the organism has been carefully avoided. To judge of the action or effect of a medicine is always sufficiently difficult, without attempting to accomplish more. Even where the mind is least biased, the accidental is often apt to be confounded with the essential, and antecedents linked with results with which they may be but very remotely related. This is not to be wondered at when we think on the very varied influences that combine to modify disease, and, as a necessary sequence, the actions of these agents we employ for its removal. Of disease we know nothing other than what is made known by symptoms and observed structural change, and of medicines only so much as they alter or modify these. Frequently the mind is not content with this, seeking to penetrate further, leaving the true field of observation, and attempting to grasp at what is placed far beyond mental reach. Thus it is that the science of therapeutics has not advanced

with that steady onward step which has marked the progress of other departments of knowledge. The properties of matter are studied, the circumstances that modify these observed, and the information so acquired is applied to the purposes of life. The day is past in which it was sought to elicit its ultimate nature or essence. So ought it to be with medicines. Their actions, and the circumstances that modify these, should alone be investigated. The therapeutic power of the mercurial compounds is acknowledged, and every day applied in the treatment of disease; yet how little, how very little, of useful knowledge is to be gleaned by the study of the various hypotheses that have been offered to explain their action.

These remarks may be considered by some foreign to the subject of this paper. They will, however, serve to show why I have not thought fit to attempt to explain the *modus operandi* of the chloride. Of this I know nothing. I have seen its beneficial employment, and presume to think that when in more general use, it will be assigned a position amongst our more valuable alterative, resolvant, and liquefacient remedies.

The following cases are appended in illustration of the effects of the salt. Numerous others might easily have been added:—

Jan. 25, 1855. J. W., hawker, aged 45, has suffered from winter cough for many years. Four days ago was much exposed to wet, and has since been unable to leave bed. When seen, skin hot, tongue furred, urine scanty, and bowels constipated. Pulse 120. Severe cough; scanty expectoration, and complains much of a feeling of constriction of chest. The stethoscope afforded the physical signs usual in bronchitis. Ordered him to be purged, afterwards to have *tart. antimon. et potassæ*, in nauseating doses, and a mustard poultice to chest.

Feb. 2nd. Feverish symptons gone. Cough still very severe. Complains of great difficulty of getting up the expectoration, which is so tenacious that he has to withdraw it from the mouth by the fingers. Ordered a teaspoonful of the following mixture, four times a day, in water:—

℞. Chloridii ammonii, ʒij.; sol. mur. morph. ʒiiss.; syr. simplicis, ʒvj.; aq. puræ, ℥iv. Solve.

Within twenty-four hours a marked improvement began, which continued till the expectoration acquired an almost watery consistency. Ten days after he was in his ordinary health.

Aug. 15, 1855. Mrs. G., aged 66, has been complaining of cough for some weeks, with slight difficulty of breathing. Is able to move about for the greater part of the day, but complains of weakness and pain, referred to anterior and lower part of chest. Pulse 70. Expectoration scanty and tenacious. Bowels had been freely purged before I saw her. Dry mucous rales heard over upper part of chest.

Ordered the foregoing mixture, without the solution of the muriate of morphia.

27th. Has still a little cough. Sputa come up freely. Is gaining strength. Has now no pain in chest, and the appetite is much improved.

July 1, 1855. Mrs. ——, married, and has had four children. Contracted syphilis, six months ago, from her husband. Was mercurialised at that time by a surgeon in the country, and used afterwards, so far as I could learn, iodide of potass. She came under my care suffering from constitutional disease, manifesting itself on the skin, with sore throat and severe pain in the limbs. Her appearance was extremely unhealthy. Appetite nearly gone. Bowels disordered.

After touching the throat with the nitrate of silver, and attending to the bowels, she was ordered to sponge the body, night and morning, with a tepid saturated solution of common salt, and to have a teaspoonful of the following mixture three times a-day :—

℞. Chloridii ammonii, ʒiiss.; acid. hydro-chlor. dil. ʒiss.; aq. puræ, ʒivss. Solve.

Shortly after beginning the medicine she began to improve, and at the end of four weeks all the symptoms had nearly disappeared.—*Glasgow Med. Journal, Oct.* 1855, *p.* 303.

148.—*Iodine Paint with Mastic.*—The following is the formula for an iodine paint, made adhesive by the addition of mastic, which is used at the Moorfields Ophthalmic Hospital :—

℞. Spirit. vin. rect. ʒ ij.; sp. æth. nitr. ʒ iv.; mastic. ʒss.; iodinii, ad saturat.

The advantage gained is, that it does not run about the skin so much. Iodine counter-irritation to the lids continues to hold a high place in the estimation of the Surgeons of this Hospital.—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 136.

149.—*Bichromate of Potash for Preservative Solutions.*—A knowledge of the virtues of the bichromate of potash as a means of preserving pathological specimens may be acceptable to some of your readers. This salt, in the proportion of about four grains to an ounce of water, constitutes a solution quite equal to alcohol in its antiseptic powers, and which costs only about twopence a gallon. It will deprive a specimen already partially decomposed, of all odour, and preserve it for any length of time. As, instead of hardening it, a little softens tissues immersed in it, it has a great advantage over both alcohol and Goadby's solution, for all objects which are intended to be re-examined, especially if the microscope is to be used. Preparations long kept in it become of a light olive green colour externally, but retain most per-

fectly their natural appearance at a little depth from the surface. The change of colour in the case of red structures such as muscle, may be prevented by the addition of a little nitrate of potash. In the same way, if it is desired, the softening may be prevented by the use of alum. Unless in combination with both the two last-named ingredients, it is scarcely adapted for a permanent solution. The great advantages over all others is, in respect to specimens intended to be kept for limited periods, either for private dissection or for exhibition. Those intended for the microscope are far less spoiled by it than by any other which I am acquainted with. The only odour which it gives to specimens is a very peculiar one, resembling that of new kid gloves. The cheapness and efficiency of this salt will, I think, make it quite a boon to pathologists.—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 137.

150.—*Charcoal Biscuits.*—Mr. James Bird has prepared biscuits containing charcoal for internal exhibition; each biscuit contains ten grains of this substance very carefully prepared. They afford an easy and palatable mode of employing this remedy in the form of an article of diet, and are likely to prove of service in gastric affections. We have known some persons who employed *over-burned toast* with advantage in relieving uneasy sensations of flatus in the stomach; it has at least the advantage of being easily obtained, and of affording the charcoal in a very fresh state at the time it is most required by the patient.—*Dublin Hospital Gazette, Feb.* 15, 1856, *p.* 30.

151.—ON THE TREATMENT OF CHOLERA.

By Dr. David Jamison, Newtownards.

[Out of 106 cases which Dr. Jamison had under his care, there were only 28 deaths: 24 of these occurred in those who were in a state of complete collapse before they came under treatment.]

I may premise that the majority of the cases were treated in the cholera hospital, a wooden building, erected in 1849; it is commodious and comfortable; the remainder were treated in a large ward of the fever hospital. I had an unlimited supply of blankets and bed-clothes, and everything I wanted was supplied at once by the directions of the Board of Guardians.

External Treatment.—On admission, the patients were put to bed and surrounded with warm blankets. If in collapse, either the hot wet sheets, as recommended by Mr. Barwell, were used, or sinapisms, hot oil of turpentine over the whole body, applied by hand-rubbing on flannel, bottles and tin vessels of hot water, hot bricks, &c. were used. The hot wet sheets, and the hot turpentine, were found the best means of warming and reviving patients. Hand-rubbing towards the heart, with or without turpentine, was used on the legs and arms of almost

all cases. In many cases I put a large fly-blister over the abdomen; when it acted it always did good. Cases admitted with vomiting, purging, and cramps, but not collapsed, had warm heavy bed-clothes put on, and the abdomen covered with a mustard poultice, &c. Often in the early stage, and always in convalescence, I applied mustard over the kidneys, and frequently it seemed to promote the creation of urine. Leeches were occasionally used in the congestive affection of the brain, but blisters to the nape of the neck were found more useful. Friction, ligatures, and warmth were used for cramps. The quantity of bed-clothes was diminished when patients rallied and got warm: perspiration was never solicited, indeed free perspiration occurred in only two cases; in one it accelerated death, in the other, a strong man, it cured the disease. The hot wet sheets never produced any amount of perspiration.

Internal Remedies.—Gallic acid, in five grain doses, was the staple remedy; it was used in almost every case, always with one grain or half a grain of calomel, and occasionally with camphor, ginger, and opium, given in sugar and water, after each discharge from the bowels, if these were marked, or with frequency proportioned to the occasion. I had used acetate of lead, acetate of quinine, and acetate of morphine, dissolved in vinegar and water, in some cases, at the first, but ceased to use it: perhaps before testing its value sufficiently I distrusted it. For vomiting and burning pain in the stomach, the remedy most used was five grains each of subnitrate of bismuth and carbonate of soda, with a little sugar. Aromatic spirit of ammonia and laudanum, also sulphuric æther and laudanum, were used in severe vomiting. Calomel in large doses was tried in some cases of collapse; I ceased to have faith in it. I never gave opium freely, and only occasionally, in small doses, with the gallic acid or bismuth. In a few cases starch enemata with laudanum were used. Whiskey punch was given in many of the first cases: I came to think it seldom did good, and sometimes did harm—in fact that nurses and patients were better without it; where I thought stimulants might do good, I substituted with advantage aromatic spirit of ammonia, or sulphuric æther, or essence of peppermint, or strong tea. My patients were permitted to drink only a small quantity at once. Tea, new milk, broth, &c., were given to all.

In the consecutive fever the organs inflamed or embarrassed were blistered, the bowels were opened with rhubarb and calomel; spirits of nitric æther, antimonial powder, acetate of potass, and cream of tartar were given; the body was sponged over with warm water, frequently patients were well washed with soap and water, and mustard or turpentine, as I stated before, was applied over the kidneys. A feverish state, more or less protracted, occurred in *every* case that recovered. In no case did salivation occur. My patients were, on the average, fifteen days under treatment.

It is foreign to my present object to say anything of local conditions

or circumstances, which may have promoted the outbreak of cholera here, or caused its spread and delay.

Perhaps it is worth while to state, that I treated a great many cases of diarrhœa before and during the prevalence of cholera; and found, in mild cases, one part of laudanum and two parts of tincture of ginger, in doses of sixty drops in sugar and water three to six times daily, with a mustard poultice to the abdomen, and a warm foot-bath, frequently to effect a cure. In severe cases, Donovan's lead mixture, or opium pills of two grains, given freely, with whiskey punch occasionally, formed good remedies, when patients were kept warm in bed for a day or two, and had mustard, turpentine, or flies applied to the abdomen. I think sulphuric acid may be a good preventive remedy: but I firmly believe we have other far better means of treating diarrhœa, dysentery, and cholera. I tried it in diarrhœa and dysentery, with unsatisfactory results. I deem it a fact of some interest, that not a miner at the Newtownards lead mines, where about 500 hands were employed, had cholera, though many of the men lived in cholera districts of the town, and some of them had cholera in their families; at least I do not know of one case having occurred among them, and certainly not a death occurred. These men wear strong coarse flannel next the skin night and day. Could this have protected them? Diarrhœa prevailed among them during the cholera epidemic; it was seldom so severe as to prevent them working.

I have been as brief as possible, as I know your journal could readily be occupied with more valuable matter, and that I can say nothing new of cholera. If there be anything uncommon in the treatment I pursued, I suppose it is the free use of gallic acid. How much of the success was owing to it, I will not affirm; but my belief is, that it restrained the purging often when no other known astringent would. Should I have cholera to treat again, I would be less afraid to use laudanum or opium; I would use whiskey and stimulants less; I would give *no* calomel in collapse or purging; I would use the same external means as before; gallic acid I would use, and the lead and quinine mixture I would, perhaps, give a fair trial to; fluid aliment, as Liebig's juice of beef and concentrated soups, &c., I would also give.—*Dublin Hospital Gazette, Nov.* 1, 1856, *p.* 292.

152.—*Water and the Cholera.*—A committee has been engaged in the investigation of the causes of the outbreak of cholera, which was so remarkable in the Soho district last year. As the result of patient investigation, they are "unanimously of opinion that the sudden, severe, and concentrated outbreak, beginning on August 31st, and lasting for a few early days of September, was in some manner attributable to the use of the impure water of the well in Broad-street." This opinion is supported by a variety of facts. We quote only one. A lady residing at Hampstead (West-end), being very partial to this

particular water, was in the habit of drinking it daily, having it fetched in a bottle by a cart that went every day from Broad-street to Hampstead.. She was seized with cholera on Friday (Sept. 1st), and died the next day. A lady staying with her at the time also drank of it and died. A servant drank the water and had a slight attack of diarrhœa.—*Lancet. Nov.* 17, 1855, *p.* 481.

153.—*Preparation of Blue Pill.*—Mr. Stoddart gives the following directions for the easy and rapid preparation of blue pill. By this process he states, that a pound of the pill mass may be obtained in an hour, so perfectly prepared, that no metallic globules are visible, even with a Coddington lens:—"Triturate the mercury with the *powdered liquorice* (adding a small quantity of distilled or rose water), till the globules are quite imperceptible, the confection of roses is *next* added, and all well mixed. The rapidity with which the liquorice 'kills' the mercury is really astonishing to one accustomed to the old way of rubbing the metal with the conserve."—*Pharm. Journal.*—*Dub. Hosp. Gaz., Feb.* 1, 1856, *p.* 15.

154.—*Blistering Plaster prepared with Chloroform.*—Dr. Landerer, of Athens, recommends, as an improved mode of making blistering plaster, the preliminary digestion of the powdered cantharides for several days, at a gentle heat, in a sufficiency of chloroform to moisten it. The mass is then to be added to the plaster half cold, taking care to avoid inhaling the chloroform, which becomes volatilized.—*Gaz. des Hop.*, No. 69.—*Med. Times and Gazette, Oct.* 13, 1855, *p.* 374.

155.—ON THE WATERS OF VICHY AND CARLSBAD.

By Dr. Cahill.

[This paper was read before the Western Medical and Surgical Society of London, and contains the results of Dr. Cahill's personal experience.]

He proceeded to give a sketch of the composition of the waters of Vichy and Carlsbad, ascribing the first and great good experienced in rheumatic affections, to the strong alkaline character of the former, which contains as much as fifty grains of bicarbonate of soda, besides chalk and magnesia, in the English pint (16 ozs.) While those of Carlsbad, on the contrary, containing only eleven grains of the bicarbonate, and as much as twenty grains of the sulphate of soda, and eight grains of chloride of sodium. From this it was evident that the Vichy waters could saturate the acidity of the system much more rapidly than those of Carlsbad; indeed, the urine has been rendered alkaline in 24 hours. The waters of Carlsbad being more aperient, as well as less antacid, require a longer time to act on the system.

Accordingly, we find that, while twenty-one days to a month is the usual course at Vichy, five weeks is considered the shortest time in which to receive benefit at Carlsbad. He here remarked, that although aperient, the effect of these waters were totally different from that of the waters of Homburg, Weisbaden, Kissengen, and those springs in which chloride of sodium is the prevailing salt, these being as severely purgative as the former are mild and gentle. The complaints for for which invalids resort to both Vichy and Carlsbad, are similar,—viz., gout, rheumatism, gravel, and affections of the liver and spleen; the last-mentioned diseases being but too common in France and Germany, as sequelæ of intermittent fevers; as also amongst military officers who have served in India, Algeria, &c. The author then proceeded to advert to the most common causes of failure or disagreement of these waters, and believed it to be the presence of some febrile action in the system, or of some disease overlooked or unknown to the medical attendant, and related two cases in illustration. Cases of organic disease of course remained uncured, although a great difference existed between the practitioners of Vichy and Carlsbad; for while those of the former place were immediately alarmed at the appearance of the slightest difficulty, declaring that "the waters did not suit," &c., the medical men of Carlsbad, on the contrary, had unlimited confidence in the powers of their springs. The regulations as to diet also differed widely at the two places. At Vichy but little restraint appeared to be enjoined, and the tables of the hotels were, consequently, well and variously supplied; and the visitors appeared far from insensible to their privileges. At Carlsbad, however, things were quite different, and considerable restraints were imposed; and the meat, butter, and eggs banished from the breakfast table were scarcely compensated by the dried and overdone meats at dinner, were it not for the soups and puddings, to which he gives all praise. The waters at Vichy are taken twice in the day—those at Carlsbad before breakfast only. He then gave some account of the different springs, but considered that the general effects were nearly the same, except that the hot springs had sometimes an effect upon the mouth and gums similar to a course of mercury.

To sum up the relative merits of the two places, the author believes that each has its superiority in different circumstances and cases. In those who require or bear active aperients, and still more where constipation is habitual, Carlsbad certainly is to be preferred. But for those who do not bear aperients, and in whom excessive acidity is the chief complaint, and above all in cases of diabetes, Vichy is as certainly preferable.—*Lancet, Nov.* 17, 1855, *p.* 473.

156.—*Cod-Liver Oil and Quinine.* By JOHN HORSLEY, Esq.—I had thought that most chemists were aware that pure quinia (like other resins) was soluble in oils and spirits. Cod-liver oil *with quinine*,

which at the present time seems to attract so much attention, and have so many claimants for its discovery, is *easily* prepared by the following process:—

First prepare the quinia by dissolving two drachms of the disulphate in half a pint of water, acidulated with two drachms of dilute sulphuric acid; then precipitate by the addition of one drachm and a half of liquor ammonia; project on a filter, and wash the precipitate with four or five ounces more water. When the precipitate has been well drained, scrape off, and introduce it into an evaporating pan, and set it over a steam-bath: the heat will cause the quinia to *melt*, and separate from the residual water; this should be poured off, and the quinia collected on a filtering-paper to dry, when it may be finely powdered and preserved for use.

To prepare the oil: Take sixteen grains of the quinia, and dissolve in eight ounces of cod-liver oil by means of a *gentle* heat; the oil will become slightly coloured. This, however, is best obviated by dissolving the quinia in a mixture of one drachm each of ether and alcohol, and mixing the solution with the oil, and then evaporating the spirit by means of a steam-bath.

If the oil requires filtration, it should be passed through a piece of lint, loosely placed on the neck of a funnel. Every ounce of the oil will contain two grains of quinia.—*Lancet, Nov.* 15, 1855, *p.* 474.

157.—*Cod-liver Oil Chocolate.—Jeffrey's Pure Cod-liver Oil with Quinine.*—Under the above heading, we draw attention to a preparation which has been recently registered in the Patent-office, as a substance likely to do away with many of the objections raised against the use of cod-liver oil.

As an article of concentrated diet, independent of any remedial effect it may possess, cod-liver oil has been favourably received and adopted by the profession. It possesses, however, an inconvenience to many persons in the unpleasantness of its odour and taste—so great, indeed, as frequently to prevent its being taken. The present substance bids fair to remove entirely these objections to the use of the oil. The chocolate is odorized with cinnamon, bitter almonds, peppermint, &c., so as to give it an agreeable flavour, and perfectly to cover the fishy taste of the oil.

Our French neighbours employ chocolate very freely as an article of food. In England we are not much accustomed to its use, but it is a highly nourishing matter, containing a larger proportion of nitrogen than any other vegetable substance. The prepared oil chocolate, it is stated, agrees well with even the most delicate stomachs, and is highly beneficial in all diseases attended with debilitating effects. When the ordinary amount of food is insufficient to support the strength, it is a valuable auxiliary, quickly restoring the waste both of fat and

animal fibre. We believe that when this preparation becomes well known it will be generally adopted by the profession.

Mr. Jeffrey's preparation is a very elegant one. It contains two grains of quinine to the ounce.—*Lancet, Nov.* 3, 1855, *p.* 418.

158.—*Test for the Purity of Cod-liver Oil.*—M. Berthe, as the result of numerous researches, states that when we let a drop of concentrated sulphuric acid fall on some drops of pure cod-liver oil contained in a glass plate, placed on a sheet of white paper, an aureola of the most beautiful violet is formed, which soon passes into a crimson. After a few minutes, the mixture becomes brown.—'Bulletin de l'Acad. T. XX. 877.—*Med. Times and Gazette, Oct.* 13, 1855, *p.* 374.

159.—*Local Use of Iodine.*—Dr. Mikschik states, that he has derived great advantage from the tincture of iodine, as an emmenagogue, applying it externally to the os uteri. Cases which had long resisted all other means, have yielded to the application after the third day. He has not found the advantages that Boinet says attends its use in vaginal catarrh, and from the temporary irritation it produces, it should be avoided in pregnancy, and when the uterus is inflamed. As a means of dispersing organic exudations he much prefers lotions (iod. potass. ʒj., iodin. gr. x., aquæ ℔j.) to ointments. They should be applied on compressess which are to be covered by a cataplasm.—'Wien Wochenschrift.'—*Med. Times and Gazette, Oct.* 13, 1855, *p.* 374.

160.—COLD AS AN ANÆSTHETIC.

By Dr. W. V. Pettigrew.

[The means of producing local anæsthesia by cold, as proposed by Dr. Arnott, has lately excited a good deal of attention. The following cases will illustrate its value :—]

Case 1.—J. T., Wilton-street, aged 52. Fatty tumour of five years' gradual growth, in the popliteal region, about the size of an orange. Had been presumed to be an aneurism, an enlarged gland and an enlarged ganglion, the characteristics of each of which, however, were wanting. I obtained some rough ice, had it very finely powdered, and added what I presume to be sea-salt, viz., that which I use (procured at Bolton's, 146, Holborn-bars) to make sea-water with for my marine vivarium, in the proportion of 2 pints ice to 1 of salt. This was placed in a thin muslin bag, and applied closely over the popliteal region. In one minute and three-quarters the part was hard, very white, and had the appearance of a washerwoman's hand. The tu-

mour was removed in half-a-minute, and two ligatures brought the edges of the wound together. Strapping and a bandage were applied; about ten drops of blood lost; no sponging required, or vessel to be tied, although the lobules of the tumour dipped deep. Not the slightest sensation of pain was experienced, and as the patient was deaf, and lay upon his stomach, and could not see what was going on, it was a fair case. I was assisted, and timed, watch in hand, by Mr. F. Pettigrew.

Case 2.—M. A. C., Belgrave-square, aged 26; highly nervous temperament. Solidified ganglion over the patella of the right knee; strongly adherent to the skin and of three years' growth. Informs me that it has been blistered for the last twelve months; no pain, but very inconvenient. Ice and sea-salt in same proportions as in the last case. Frosted in two minutes and a-half. Operation lasted nearly two minutes, as the adhesions were so strong, it was like carving out a solid ball from the skin. No pain was felt during the long incision through the skin, nor in detaching the tumour from the sides; but the separation from the patella was felt, although not so acutely as under other circumstances. Two ligatures were run through the integuments; strapping and bandage; not above twenty drops of blood lost. Dr. Hullet Browne and Mr. F. Pettigrew assisted me, the former of whom timed the freezing at operation.

As far as I can judge from these two cases, I should say that at least two-thirds of the operations performed under chloroform may be dispensed with, the cold application is so simple and so rapid in its action. As to the pain of the application,—at first it appears hot, then tingling, and sensation is altogether lost after this. The ice must be most finely pounded. I did it in a towel, banging the ice with a weight; if it is not well pounded, the part will evidently not be equally frozen, which accounted for Case 2 taking two minutes and a-half to freeze; neither should too much ice be put in the bag, as a thin layer can be more easily placed under a projecting tumour. I may mention that to-day, the 28th, the bandages are just stained at the lower portion of each wound. To-morrow, or next day, I purpose operating upon a nævus, and have several other cases waiting, including a breast for next week, and will let you (if you think it sufficiently interesting) know the results. I had the performance of the operation timed, to ascertain whether the reaction speedily returned.—*Med. Times and Gazette, Dec.* 22, 1855, *p.* 629.

161.—*Glycerine as a Dressing for Wounds.*—During the last six months repeated laudatory notices of the use of glycerine as a dressing to wounds and ulcers have appeared in the French journals. M. Dallas, of Odessa, states, that he has employed it for several years, and in the Hôpital St. Louis, MM. Demarquay and Denonvilliers have put it to

an extensive trial. They report of it, that it possesses very extraordinary virtues, causing phagedænic action to be arrested, promoting the process of healthy granulation, and inducing rapid cicatrization. It is even stated to have effected the cleaning of wounds to which citric acid, nitric acid, and the actual cautery had been applied in vain. We have lately had an opportunity of watching a trial of the remedy by Mr. Skey, in St. Bartholomew's Hospital. The first few cases in which it was resorted to appeared greatly benefited, and Mr. Skey was induced by their result to direct its general use. His final conclusion, however, as stated in clinical remarks, has been, that the remedy possesses no peculiar virtues whatever. A considerable number of sores heal rapidly during its use, as, indeed, they would do under that of any non-irritating application which would exclude the air and prevent drying; in those, however, which have assumed an unhealthy state, and which resist the influence of other like remedies, it effects nothing whatever. A smaller series of trials by Mr. Hutchinson on patients at the Metropolitan Free Hospital, have led him to the same conclusion with Mr. Skey. Unhealthy sores dressed with it for periods of three weeks have remained precisely *in statu quo*. It is an agreeable application, causes no smarting, excludes the air, keeps the sore moist, and does not adhere to its edges, but beyond these it appears to possess no recommendations. While more expensive, it seems little, if at all, superior to olive or almond oil. It may seem difficult to reconcile the great discrepancy between foreign and English experience which these conclusions show. It might, perhaps, scarcely be deemed fair to insinuate, that on the Continent the employment of dressings which simply exclude air, and are themselves non-irritating, is not so well understood as among ourselves, and that, consequently, credit has been given to a single remedy which belongs rather to the whole class. Such, however, we suspect is, to some extent, the case. In one case, recorded by M. Petel, the source of fallacy is transparent. A woman came under his care for phagedænic stomatitis. Glycerine was applied, and *chlorate of potash given*. A very rapid cure, of course, occurred. The narration reminds one of Voltaire's assertion, that he could easily kill a flock of sheep by spells of witchcraft, provided, at the same time, he might mix a little arsenic with their food.—*Med. Times and Gaz., April* 12, 1856, *p.* 362.

162.—*Capron's Ventouze, for Cupping and Dry Cupping.*—This very useful and ingenious instrument is the invention of M. Capron, of Paris, and is another instance of the valuable adaptation of india-rubber to our surgical appliances. The india-rubber ball is an exhausting medium, which may be regulated to any required power by the hand of the operator. By turning the screw, the ball can be taken away, leaving the glass in active operation upon the part.

The Ventouze is constructed for cupping, leech-bites, and as a breast-reliever; different glasses being added to fulfil these various purposes, which are accomplished most perfectly. Messrs. Weiss & Co. are appointed the London agents.—*Lancet, April* 19, 1856, *p.* 436.

163.—ON ULCERATION OF CARTILAGE.

By James Syme, Esq., Professor of Surgery in the University of Edinburgh.

[In a clinical lecture on this subject, Professor Syme made the following remarks:—]

To this title objections have been made, and I am not prepared to maintain that it is free from exposure to them. But in using it I merely wish you to understand a particular state of articular disease, occurring in certain circumstances, characterized by peculiar symptoms, and remediable by only one means of treatment. It is generally met with in persons liable to rheumatism, which, after shifting about through various parts of the body, is said to fix itself in the joint affected. On other occasions it appears suddenly, without any such previous warning, and is most apt to do so as a sequel of some feverish disturbance, especially that which so frequently occurs in women who are nursing. It is hardly ever met with in the ball-and-socket joints, such as those of the shoulder and hip, being nearly confined to the hinge-joint articulations, as those of the elbow, wrist, knee, and ankle, which are affected in degrees of frequency that may be arranged in the same order as just mentioned.

The symptoms are, first, severe, deep-seated pain, aggravated by pressure and motion, generally increased during the night, and usually suffering exacerbation before rainy weather; second, uneasy sensations, in general referred to the joint next to the one concerned, but frequently extending throughout the limb; third, diminution or complete loss of muscular power; fourth, œdematous swelling; fifth, variations of temperature; sixth, numbness or want of proper sensation; seventh, more or less swelling, of a firm unyielding kind, confined to the seat of the articulation. This condition may continue for weeks or months with little or no alteration, but sooner or later terminates either in recovery, with more or less stiffness of the joint, or in suppuration, when caries is the most frequent result. When the joint is examined at an early period, the cartilages are found eroded, with a little bloody fluid in the cavity, and hence the disease has received its appellation. In order to relieve the patient's distress, to protect the joint from undergoing a change inconsistent with its free mobility, and to prevent the risk of suppuration, which must be attended with either anchylosis or caries, it is obviously a very important object in surgical practice to obtain an effectual control over this morbid derangement. But the means adequate upon

other occasions are here altogether unavailing. The constitutional remedies by which alone synovial disease can be successfully combated are of no avail, and the prevention of motion, which has so beneficially superseded the employment of counter-irritation in other diseases of the joints, here affords at best nothing better than a very imperfect palliation. Fomentations, poultices, leeches, blisters, and even issues opened by the knife or caustic, cannot claim any higher degree of efficiency, so that a practitioner who possesses no other means of relief must regard such cases as the opprobria of his art, and distressing subjects of professional care. But fortunately there is a remedy within the reach of every one not precluded by prejudice from employing it, which may be regarded with perfect confidence as an effectual counter-agent of the disease in question. This is the actual cautery.

Nearly thirty years ago, the perusal of the work on "Arthrokakogie," by the late Professor Rust, of Berlin, induced me to employ the actual cautery for counter-irritation. At that time, so far as I know, it had never been used for this purpose in Great Britain, and much horror was expressed by many of my professional brethren, at what seemed to them so shocking a proposal. But the surprising and no less satisfactory results derived from its use soon forced the red-hot iron, notwithstanding all its terrors, upon the attention of practitioners, and as frequently happens under such circumstances, led to mischief through its indiscriminate employment. Many a time I have seen joints suffering from nothing but gelatinous degeneration, burnt longways and crossways so as to present the pattern of a chequered plaid, and even in cases of subacute phlegmonous inflammation, I have seen this excellent remedy employed so ignorantly and remorselessly as to open the joint, and establish a pretext for amputation. But a proper field for beneficially employing the actual cautery is that disease of the joints which I have just endeavoured particularly to describe, and for this it may be considered a remedy no less certain than speedy. If time permitted, I could give you a long list of remarkable cases, in which patients, exhausted by protracted suffering, disappointed by the employment of useless treatment, and regarded as hopeless by their medical attendants, were suddenly transferred by it from misery to comfort, and restored to permanent good health. One of the first I recollect came with great difficulty to Edinburgh, suffering from protracted disease of the elbow-joint, in the course of which he had employed all the ordinary means, including a "gross of leeches," without obtaining relief, so that for several weeks, as he assured me, he had not been conscious of ever sleeping. Indeed, he could not assume the horizontal posture, and passed all his time seated in a chair. I applied the cautery. Next night he slept soundly; the swelling and pain soon subsided, and recovery was quickly completed, with merely some stiffness and want of smoothness in the motions of the joint. The patient was a

fish-curer at Berwick-upon-Tweed, and for long afterwards annually sent me a salmon in grateful testimony of the relief which he had experienced.

The patient now before you, Mrs. ——, aged 27, tells us that five weeks ago, when her baby was seven months old, she was exposed to cold by hanging out clothes to dry, and subsequently had a feverish attack, which was followed by the painful swelling of the wrist-joint, which has existed ever since. You observe the enlargement of the joint, the œdema of the hand, the utter powerlessness of the fingers; you hear what the patient says of her sufferings, and you may judge of their severity from her care-worn aspect. Fomentations and leeches have afforded no relief. We shall now try the effect of the cautery.

[Chloroform having been administered, the cautery was applied on the back of the wrist, in the form of a cross; and, eight days afterwards, Mr. Syme thus continued his remarks upon the case:—]

The patient says that she has improved every hour since the cautery was applied. She slept well the first night, and is now entirely free from pain at the wrist, as well as her uneasy sensations elsewhere. The œdematous swelling is almost gone, and the fingers are stronger, so that she can now grasp with sensible force. In short she is convalescent.—*Lancet, April* 19, 1856, *p.* 437.

164.—EXPERIMENTAL RESEARCHES ON THE NERVOUS SYSTEM.

By Dr. E. Brown-Sequard, Laureate of the Académie des Sciences.

There are two kinds of sensitive fibres in the posterior columns of the spinal cord, some going up towards the encephalon (centripetal or ascending fibres), some going in the opposite direction (centrifugal or descending fibres.)—I had found long ago, that after a transverse section of the posterior columns of the spinal cord, the inferior surface of the section, or that of the part of the posterior columns which seems to be separated from the encephalon, remains sensitive. In 1852 I was forcibly led to admit, that there are sensitive fibres going in a centrifugal direction in the posterior columns. The following experiment was the first which led me to this conclusion. I introduce a very sharp bistoury between the posterior and the anterior parts of the spinal cord, so as to separate the two posterior columns from the grey matter, and from the antero-lateral columns. By this means I obtain a segment of the posterior columns, in continuity, by its two extremities, with the rest of the spinal marrow. This being done I divide transversely the upper extremity of this segment, leaving it attached merely by its lower extremity to the rest of the cord. This segment I find sensitive in the whole of its length, when it is not much more than two inches long, in a large animal.

If we prepare, in the same way as in the preceding experiment, a segment of the posterior columns, two inches long, and attached by its upper extremity, instead of being attached by the lower, we find, also, that this segment is sensitive in all its length.

To avoid circumlocution, I will call "cephalic segment" the one united to the cord by its upper or cephalic extremity, and "caudal segment" the one united to the cord by its lower or caudal extremity.

A caudal segment usually seems to be more sensitive than a cephalic segment. The sensibility in the two segments increases from the free or divided extremity to the attached extremity. When the segments are four or five inches long, sensibility disappears from the divided extremities.

The pain produced when we irritate the caudal segments arises from two causes, the principal of which is, that there are some descending or centrifugal sensitive fibres in it. The other cause is, that reflex painful cramps take place in consequence of the irritation of this segment.

The existence of the descending sensitive fibres will be rendered more certain by other experiments which will be related hereafter.

There are also ascending and descending sensitive fibres in the posterior grey horns, and very likely, in the posterior parts of the lateral columns.—In making a caudal or a cephalic segment of the posterior columns, if we leave united with this segment longitudinally a part of the lateral columns with the two posterior grey horns, we find that sensibility is greater in the posterior columns of the segment than when it is composed only of the two posterior columns. When we leave a great part of the lateral columns with the segment, its sensibility seems to be a little greater.

Now we have to examine where the descending and ascending sensitive fibres of the posterior columns are coming from, and by what channels they communicate with the encephalon.

The ascending and descending sensitive fibres which exist in the posterior columns, come mostly, if not entirely, from the posterior roots of the spinal nerves.—I draw this conclusion from the following experiments, which show, that a certain number of the fibres of the posterior roots pass through the posterior columns.

After a transverse section of the posterior columns at a little distance in front of the posterior roots of a pair of nerves, I ascertain that these roots are still sensitive, although a little less than before the operation. Then I divide transversely the posterior columns at a short distance behind these roots. Their sensibility after this second section is very much diminished, so that we are led to admit, that many of the fibres of the posterior roots pass into the posterior columns in which they are descending.

Now, in making first the section behind the posterior roots of a pair of nerves, we find their sensibility diminished, and after the section before these roots we find it very much more diminished. So that we

are led to admit, that many of the fibres of the posterior roots pass into the posterior columns in which they ascend towards the encephalon.

The posterior roots not only send ascending and descending fibres to the posterior columns, but also to the posterior grey horns, and very likely to the posterior parts of the lateral columns.—After having divided transversely the two posterior columns in front and behind the posterior roots of a pair of nerves, if we enlarge these two sections by dividing transversely the posterior grey horns, and the posterior parts of the lateral columns, we find that these roots lose entirely their sensibility.

If we introduce a flat needle into the posterior grey horns, in front and behind the posterior roots of a pair of nerves, so as to divide transversely these horns, we find that sensibility is diminished in these roots. If these punctures into the grey matter are made only in front or behind these roots, their sensibility is very little diminished after the operation.

If we divide the posterior part of the lateral columns, together with the posterior grey horns, we find that the loss of sensibility is a little greater.

The ascending and descending sensitive fibres which have passed from the posterior roots into the posterior columns, the posterior grey horns, and very likely also the lateral columns, soon leave these parts to go into the central grey matter.—This is proved by a great many experiments of which I will relate only the following:—After having made a transverse section of the posterior half of the spinal cord, if we make a second similar section, at a distance of four or five inches, or more, if the animal is a very large one, we find that the upper surface of the lower section is very sensitive, and the posterior roots attached near it are also very sensitive. Now, if we make other transverse sections of the same posterior half of the spinal cord behind the upper one, we find that the nearer the section is made to the lower one, the more sensibility is diminished in the parts which we had found very sensitive at first. This a proof that the ascending sensitive fibres, when going upwards, leave the posterior parts of the cord one after the other. An experiment of the same kind proves that the descending fibres behave as the ascending do.

After having gone out from the posterior columns and the posterior grey horns, the sensitive fibres pass into the central part of the grey matter, as is proved by the effect of the transverse section of this central part of the cord.

The ascending and the descending sensitive fibres coming from the posterior roots, decussate in the spinal cord.—It was admitted, before my researches, that there is no crossing of the sensitive fibres into the spinal cord. Physiologists and Pathologists entirely agreed upon this subject, and, in the books upon the diseases of the spinal cord it is stated as a well-proved fact, that a lesion of one side of this organ pro-

duces paralysis both of voluntary movement and sensibility in the same side of the body. The following experiments prove that the sensitive fibres cross each other in the spinal cord, and we will relate, in a moment, a few (out of many) pathological facts which agree with these experiments.

After having divided transversely a lateral half of the spinal cord in the dorsal region, we find that there is an increase in the sensibility of the parts of the body situated behind the section, while the corresponding parts in the opposite side of the body are much less sensitive than before the operation. This experiment and the following prove that the transmission of the sensitive impressions coming from the left side of the body, takes place mostly along the right side of the spinal cord, and *vice versâ*.

If a transverse section of a lateral half of the spinal cord is made in the cervical region, the two limbs on the side of the section become hyperæsthetic, and the limbs on the opposite side lose, at least, a great part of their sensibility.

If, after a transverse section of a lateral half of the spinal cord in the dorsal region, we divide the other half of this organ in the cervical region, we find that the hyperæsthesia, which existed after the first section in the parts of the body which are behind it, disappears, and is replaced by anæsthesia.

If we divide transversely, first, the two posterior columns of the spinal cord in the dorsal region, we find, as I have already said in the first part of this paper, that the posterior limbs are in a state of hyperæsthesia. This being ascertained, I divide transversely the remainder of a lateral half of the spinal cord, at the place where the posterior columns have been divided, and then I find that the hyperæsthesia of the posterior limb, behind and on the side of this second operation, becomes increased, while not only the hyperæsthesia, but sensibility, disappears almost entirely in the other posterior limb.

A longitudinal section, separating the spinal cord into its two lateral halves, gives very decisive results as regards the crossing of the sensitive fibres in this organ, particularly when this section is made upon the cervico-brachial enlargement. In such a case, sensibility is lost in the two anterior limbs, while it remains, and seems somewhat increased, in the two posterior limbs. This having been ascertained, if I divide transversely one of the lateral halves of the spinal cord, at the place where they are separated one from the other, I find that there is an increase in the hyperæsthesia of the posterior limb on the same side, and that the sensibility of the other posterior limb is almost entirely destroyed.

It would be too long to relate some experiments which prove that the appearance of sensibility in the side of the body opposite to the section, depends upon a communication between this side and the other, which is hyperæsthetic, by means of reflex action and of what has been called recurrent sensibility by Magendie.

The ascending, as well as the descending sensitive fibres make their decussation, in a great measure, very near their place of entrance into the spinal cord from the posterior roots.—After having divided transversely a lateral half of the spinal cord, in the dorsal region, if we divide longitudinally this organ, so as to separate its too lateral halves one from the other, and at a right angle with the transversal section, we obtain the following results, when the longitudinal section, in a large animal, is only two inches long:—Whether this longitudinal section has been made behind the transverse one (so as to give a caudal segment of a lateral half of the cord), or before the transversal (so as to give a cephalic segment), we find that sensibility persists, but diminished, in these segments, and in the posterior roots which are inserted upon them. If the longitudinal section is more than two inches, sensibility does not exist in the whole length of the segment; it begins to exist at the distance of about two inches from the extremity, which adheres to the rest of the cord, and it increases by degrees from this part to the adherent part.

There are pathological cases observed in man, which prove also that the sensitive fibres make their decussation in the spinal cord.—I have already published some cases of this kind, and they will be found, with a few others, in the book I am about publishing. I will merely relate here, shortly, the three following:—

1. A patient was paralyzed of voluntary movement on the right side of the body, with unimpaired sensibility. On the left side, on the contrary, he had lost sensibility, but had no paralysis of voluntary movement. After death, a fungoid growth was found pressing upon the right lateral half of his spinal cord.

2. A patient, with loss of voluntary movement, and conservation of sensibility in the arm and leg, on the left side, had only a very obscure sensibility in the same parts on the right side. After death, a clot of blood was found in the left lateral half of his spinal cord in the cervical region.

3. A patient had lost voluntary movement, and had his sensibility normal on the right side of the body. On the contrary, on the left side, he had entirely lost sensibility, but had no paralysis of voluntary movement. After death, a clot of blood was found in the left lateral half of the spinal cord, in the cervical region.

It results clearly from these facts, and from others which I cannot relate here, that the sensitive fibres cross in the spinal cord.

Many cases of alteration of a lateral half of the medulla oblongata, and of the pons Varolii, prove that the decussation of the sensitive fibres of the trunk and limbs takes place in the spinal cord.—I will merely relate, as briefly as possible, three of the cases as examples:—

1. A patient had paralysis of voluntary movement in the limbs, on the left side, and also a very dull sensibility in these limbs.

The symptoms increased, and the hemiplegia became complete in the left side, but the right side remained perfectly healthy. After death,

the right lateral half of the pons Varolii was found to be the seat of a diffluent softening, while the left half was healthy.

2. A patient was hemiplegic both of voluntary movement and sensibility on the left side of the body. After death, a *ramollissement*, the size of an almond, and resembling liquid pus, was found in the inferior and middle part of the right side of the pons Varolii.

3. A young Pole became paralyzed both of sensibility and voluntary movement in the left side of the body. After death, the right side of the pons was found double its normal size, extending forwards and backwards, and compressing the neighbouring parts. The cause of the enlargement of the pons was a very large clot of blood.

These facts do not agree with the views of Longet, as to the place of crossing of the sensitive nerve-fibres in the cerebro-spinal centre. Longet thought that this crossing took place in front of the pons Varolii, where the processus cerebelli ad testes seem to decussate.

The cases of alterations, limited to one-half of the pons Varolii, of the medulla oblongata, and of the spinal cord, all agree in showing that the sensitive fibres of the trunk and limbs make their decussation in the spinal cord, and not higher. The very disputed question, whether the medulla oblongata has a crossed action for sensibility or not, is decided in the affirmative by these facts.

Some anatomical appearances had led Sir Charles Bell to admit that the decussation of the sensitive fibres takes place in the floor of the fourth ventricle, near the nib of the calamus. It is not necessary to show that this view is in opposition with the results of the experiments and of the pathological cases which prove that it is in the spinal cord that the sensitive fibres decussate.

The transmission of sensitive impressions through the spinal cord takes place in some definite directions, and not, as many German physiologists have thought, in almost every direction.—The fact that a section of a lateral half of the spinal cord does not prevent the taking place of the transmission of the sensitive impressions coming from the parts of the body which are on the side and behind the section, had led Stilling and others to admit that the grey matter of one-half of the spinal cord was able to transmit impressions coming from the two sides of the body. Other experiments upon frogs,—animals in which reflex actions are very energetic,—have misled these physiologists, and they have concluded that the transmission of sensitive impressions may take place almost in every direction in the spinal cord, and that one part of the cord may act in place of another in a supplementary manner.

These views, which are in opposition with the theories of the isolation of sensations, are also in opposition with many of the experimental and clinical facts we have related. It is not necessary to show how these facts are in opposition with the views of the German physiologists. We will merely say, that the loss of sensibility observed in experiments and in pathological cases, on the side of the body opposite

to the side of the lesion, should not have taken place had these physiologists been right. Another striking experiment against their view is, that a longitudinal section separating the spinal cord in the whole lumbar region, prevents the taking place of transmission of the sensitive impressions coming from the posterior limbs.

All the experiments I have made tend to prove, that the transmission of sensitive impressions follow a definite course in the spinal cord, and that when they cannot follow their normal course, they do not find a supplementary one.

The course of sensitive impressions in the spinal cord is not the same as that of the nervous force for the reflex actions.

M. Flourens has shown long ago, that the spinal cord has the faculty of propagating the nervous force in almost every direction for the reflex actions. The following experiment shows the differences between the transmission of sensitive impressions and that of the nervous force acting for reflex actions. After having divided longitudinally in two lateral halves the lumbar enlargement of the spinal cord, we find that sensibility is lost in the posterior limbs, and that reflex actions remain in them before and after a transverse section has been made in the dorsal region of the spinal cord.

There are some transverse fibres in the spinal cord, coming from the posterior roots, which do not seem to transmit sensitive impressions.—After a transversal section of the posterior half of the spiral cord, just in front and behind the roots of a pair of nerves, we find, that there is hardly any appearance of sensibility in the posterior roots inserted between the two sections. There is, when we irritate these roots on one side, or rather when we irritate the part of the skin to which they are distributed, a slight reflex movement on the corresponding and on the opposite side of the body. The transverse fibres, which the microscope shows going from the posterior roots of one side to the anterior roots of the corresponding and of the opposite sides, seem not to be employed for the transmission of sensitive impressions, but for reflex actions. These transverse fibres have been seen by almost all the micrographers; but it is mostly to Stilling, and after him to Mr. J. Lockhart Clarke that we owe the first good descriptions of them.—*Med. Times and Gazette, May* 3, 1856, *p.* 432.

165.—REMARKS ON THE ANATOMY AND PHYSIOLOGY OF THE SPINAL CORD.

By J. Lockhart Clarke, Esq., F.R.S.

[In the preceding very remarkable and valuable experiments of Dr. Brown-Séquard, on "the Channels of Transmission of the Sensitive Impressions through the Spinal Cord and Medulla Oblongata," some allusion is made to the researches of Dr. Clarke, which may be better understood by the following explanation.]

Before the appearance of my investigations in the 'Philosophical Transactions of the Royal Society' for the years 1851 and 1853, the opinions were generally maintained, that the posterior—sensitive and impressional—roots of the spinal nerves were attached to both the posterior and lateral white columns of the cord; and that the posterior columns were the channels of communication between these nerves and the sensorium. Now, in the first part of these inquiries, among other facts, I proved, by means of a new method, and to the entire satisfaction of many of our most distinguished anatomists, that the posterior roots are attached immediately to the posterior columns alone, and that they communicate with the lateral columns only after traversing certain portions of the grey substance. In the second series of inquiries may be found a very full and minute description of both roots of the spinal nerves, and of their course in the white and part of the grey columns, illustrated by plates which were made from preparations that I have now by me, and are open to inspection. The posterior roots, as there described, are composed of three kinds of bundles.

The first kind enter the cord transversely, and pursue a very remarkable course, but are not satisfactorily seen below the cervical enlargement. Each bundle, after traversing the longitudinal fibres of the posterior columns in a compact form, and at a right angle, continues in the same direction to a considerable, but variable, depth within the grey substance, dilating and again contracting, so as to assume a fusiform shape; it then bends round upon itself at a right or more obtuse angle, and running for a considerable distance in a longitudinal direction down the cord, sends forwards, at short intervals, into the anterior grey substance, a series of fibres like those issuing from the roots of a plant. In this longitudinal course, it is joined by corresponding fibres from bundles above and below it, which thus contribute to form a continuous band, as low, at least, as the cervical enlargement. The fibres, or as it were, rootlets, projecting from this band into the anterior grey substance, have the following distribution:—Part of them form loops with each other within the grey substance, particularly near its border: others extend directly into the anterior and lateral white columns, and bending round, both upwards and downwards, are seen sometimes to re-enter the grey substance, and form with each other a series of loops, and sometimes to continue a longitudinal course within the anterior (and probably lateral) columns, among the fibres of which they become lost.

The second kind of bundles also traverse the posterior columns transversely, but with different degrees of obliquity from without inwards, extending nearly as far as the posterior median fissure. They enter and pass through the posterior grey substance at various angles and in a compact form, interlacing and intertwining each other in the most complicated manner; some of their fibres cross over to the opposite side, through the posterior commissure, behind the spinal canal

Others extend outwards, into the posterior and lateral white columns; while the rest may be traced deeply into the anterior grey substance, where they separate in various directions, and are ultimately lost to view.

The bundles which compose the third kind of posterior roots enter the cord obliquely, and pursue two opposite courses. A few of their fibres proceed near the surface, both upwards and downwards, and pass out again, with the roots above and below them. The rest cross the posterior white columns obliquely, and chiefly upwards, a smaller number only, running downwards. Interlacing, at the same time with each other and the roots already described, they diverge, and, for the most part, reach the grey substance, at points successively more distant from their entrance in the cord, in proportion to the greater obliquity of their course in the posterior white columns: the remaining, or most divergent, fibres taking a longitudinal course with the fibres of those columns, among which they become lost. It is impossible to say whether any of these latter fibres are continued upwards as far as the brain, or whether they ultimately reach the grey substance of the cord.

From these anatomical data I felt myself justified in drawing the following conclusions:—"It may, then, I think be fairly laid down as a well-established fact, that nearly all, if not the whole, of the fibres composing the roots of the spinal nerves, after passing through the anterior and posterior white columns of the cord, proceed at once to its grey substance; and that if any of them ascend directly to the brain, it must be those only of the posterior roots which run longitudinally in the posterior columns."

"The question, then, arises,—Do the fibres of the posterior roots, which run longitudinally in the posterior fasciculi, transmit impressions to the sensorium? In answer to this question it may be stated, —1st. That even if they reach the brain, their number appears insufficient to convey such impressions from all parts of the body; and, 2ndly, that the anatomical connexion of the posterior columns exclusively with the cerebellum, would, *à priori*, lead us to a negative conclusion, unless we regard this latter organ as the common centre of sensation, which we have no grounds for believing it to be. But the same anatomical connexion of the posterior columns with the cerebellum, clearly indicates that they establish some physiological relation between this organ and the spinal cord; and if the cerebellum were proved to be, according to the generally received opinion, a centre of motor power only, destined for the control and co-ordination of complex muscular movements, it would then follow, that these columns were motor, and not sensitive, whether or not we admit them to be constituted wholly, or in part, of the longitudinal fibres of the posterior roots.

"Upon anatomical grounds, then, it would appear, that the posterior columns are not the channels of communication between the

sensorium and the posterior spinal nerves."—*Philosoph. Trans.* 1853, *p.* 350-1.

I am not aware that any opposition has been made to these conclusions which I drew from my anatomy, and which are now confirmed by the experiments of Dr. Brown-Séquard. Nevertheless, there was still wanting the physiological proof which he has so ably and ingeniously supplied.

The nerve-fibres which run downwards in all regions of the cord I have observed with remarkable distinctness in some of the Articulata, in which they are exactly equal in number to those which pass upwards.—*Med. Times and Gaz., May* 3, 1856, *p.* 435.

166.—*Description of a Contrivance by which any Length of Vulcanized India-Rubber Tube may be fixed to a Canula when the Operation of Paracentesis Abdominis is Performed.* By John Birkett, Esq., Surgeon to Guy's Hospital.—[In cases where the patient cannot bear disturbing or removing from her common position in bed, the following addition will be found very convenient and useful.]

On the canula is fixed a flange, (fig. 1, 4.) The canula is prevented sliding up the trocar by a shoulder, (*b.*) Over this flange a piece of vulcanized india-rubber tube, two inches long, is drawn. This is represented by the dotted line, 5. Through the india-rubber tube and canula the trocar is passed, and the instrument is ready for use.

A piece of metal tube, one inch long, with a flange at either end, (fig. 2, *a*,) is required, and a long piece of india-rubber tube (fig. 2, *b*) is fixed to one end, (*d.*) When performing the operation, the other end is inserted into the free end of the india-rubber tube, (fig. 1, 5,) after the trocar is withdrawn.

The instrument is thus used: the trocar and canula are passed into the abdominal cavity in the usual manner. The finger and thumb of the left hand are then applied to the piece of india-rubber tube, and it is compressed firmly as the trocar is withdrawn. Whilst the sides of the tube are firmly pressed together, to prevent the escape of the fluid from the abdomen, the end of the metal tube (fig, 2, *c*) is inserted into the free end of the india-rubber tube, (fig. 1, 5.) The thumb and finger are now removed, and the serum flows away freely.

When the operation is dexterously performed, not a drop of fluid escapes over the bed clothes. Also, by this means, the objectionable sound of the flowing stream is prevented by the end of the tube being placed in the fluid.

A similar contrivance may be adopted to prevent the admisson of air into the chest when paracentesis thoracis is performed.

Fig. 1.

Fig. 1.—1, The trocar, having a long shaft (*a*), and a shoulder (*b*), by which the canula is prevented sliding over the shaft.
2, Ebony handle, without any projection at the joining with the shaft (*a*), so that the piece of vulcanized tubing may slide over it.
3, Silver canula, with a flange, 4, to which a piece of tubing two inches long, is fixed, 5.
N.B. The dotted lines represents the vulcanized india-rubber tubing.

Fig. 2.

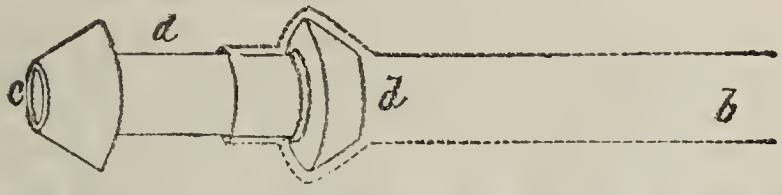


Fig. 2,—A metal tube (*a*), with a flange at its ends. The end (*d*), with a tube of vulcanized india-rubber, of any required length, attached. The end (*c*), which is inserted into the end of the piece of india-rubber tube, attached to the canula, after the trocar is withdrawn.—*Lancet, April* 19, 1856, *p.* 427.

167.—*Varicose Veins.*—In a very marked case of a patient with varicose veins, in St. Bartholomew's, Mr. Skey placed a dozen small issues with the potash paste along the *trajet* of the enlarged venous trunks, with the very best possible effect; the issues healed up very kindly, and the varicose condition of the large trunks of the lower extremity disappeared *pari passu* with the action of the issues. Mr. Skey believes this to be the best of all the plans for treating this troublesome affection.

In two similar instances under treatment in University College Hospital, Mr. Erichsen placed ligatures on the veins, the only precaution that is necessary, he said, being not to transfix the vein, or suppurative phlebitis might be set up. The operation will be quite safe if, in passing the twisted suture, the surgeon keeps *beneath* the vein; if blood passes out, the vein will in all probability be transfixed. Both cases have done well.—*Lancet, Dec.* 29, 1855, *p.* 625.

168.—ON THE DIAGNOSIS OF CERTAIN FORMS OF INFECTING AND NON-INFECTING SYPHILITIC SORES.

By Henry Lee, Esq., Surgeon to King's College and the Lock Hospitals. (Read before the Royal Medical and Chirurgical Society.)

The author observed that Jenner regarded a peculiar kind of inflammation to be essential to the production of the effects of the vaccine poison on the patient's constitution; and Willan made similar observations respecting the inoculation of the poison of small-pox. Unless the morbid process peculiar to each poison were gone through, although other constitutional effects might follow, yet that which constituted the peculiar action of the poison upon the patient's constitution would not. It was the same with respect to the syphilitic poison. The peculiar morbid process which indicated its introduction into the system was attended with inflammation of the adhesive character, as in the case of the cow-pox. The application of the syphilitic poison often gave rise to true suppuration in the inoculated part; but this was essentially a different morbid process to that by which the poison was introduced into the patient's system. Where a syphilitic sore at an early stage produced well-formed pus globules, that affection would not infect the patient's constitution. The virus from such a sore might be readily enough inoculated; much more certainly, indeed, than that from a genuine infecting sore. Inoculation, therefore, was no test of the necessity of treating a patient by mercury, since suppurating sores, most readily inoculable, were not, if left to themselves, followed by secondary symptoms. Induration, the author regarded as affording no invariable evidence of the adhesive inflammation; for, in the first place, the product of the inflammatory action might be poured out upon the surface of the affected part, without infiltrating its tissue. This was as true of the adhesive as of the suppurative inflammaiton, and in neither case would there be any induration of the inflamed part; and, in the second place, the presence of induration gave no invariable indication of the nature of the inflammation which produced it. The sense of touch alone would not invariably indicate whether the effused lymph would remain such until absorbed, or whether it would subsequently become converted into pus: whether, in fact, the inflammation was of the adhesive or suppurative character. The information which the sense of touch failed to give, the examination of the secretion from the infected part would often supply. Examined under the microscope, from different kinds of sores, the globules in the discharges would often appear very similar; but if acetic acid were added before examination, a clear distinction might be drawn between those cases in which true pus globules were formed and those in which they were not. When true pus

globules were formed at an early period, and were not produced by artificial irritation, the author maintained that no constitutional syphilitic disease would result. The various points mentioned in the paper were illustrated by cases.—*Lancet, June* 7, 1856, *p.* 627.

169.—*Three Suggestions respecting Excision of the Knee-Joint.* By Dr. Otho Vitalis.—[Dr. Vitalis says :]

Mr. Holt, senior-surgeon to the Westminister Hospital, pointed out long ago, in his clinical lectures, the obvious necessity and advantage of having recourse to the three following expedients :—

1. Dividing the hamstring tendons.
2. Making an opening into the popliteal space ; and
3. As regards the apparatus on which the limb is put after such an operation, to have (in the apparatus) an opening about seven or eight inches in circumference, through which the pus may escape, and the posterior wound be dressed, without disturbing the limb.

I will add a *fourth* suggestion, and that is, to put the operated limb in one of Ester's swinging fracture apparatus, made, of course, on purpose. By this last expedient the patient will be enabled to move in bed, be more comfortable, prevent bed-sores by change of position, and, therefore, increase the chances for a successful operation.

Two months ago, Mr. Holt had occasion to excise the knee-joint, and the three above named suggestions were adopted with the best results to the comfort of the patient; and had the fourth expedient been put in practice, there is no doubt that the patient's comfort would have been greater, although from circumstances which will be transmitted for your publication with the general details of the case, the operation unfortunately terminated fatally.—*Med. Times and Gaz., March* 22, 1856, *p.* 284.

170.—*On Confluent Small Pox.* By Dr. J C. Cookworthy, Senior-physician to the Plymouth Dispensary.—The object of my troubling you with this note, is to suggest the use of opium in confluent variola. I have seen a few grains of Dover's powder, given at night, productive of the greatest benefit, in persons of all ages, so soon as the eruption was completed; and have had reason to attribute the safety of some desperate and truly disgusting cases to the employment of this drug.—*Association Med. Journal, March* 15, 1856, *p.* 221.

171.—ON POISONING BY ACONITE ROOT.

By Dr. F. Headland.

After glancing at the history of the plant, and its use as a poison in ancient times, he referred to a number of statements made by authors in the middle ages, which showed that the poisonous properties of the plant were well understood by them. Poisonings by aconite in modern times were usually accidental. A number of cases in which the leaves and shoots had been eaten with fatal effects, were first briefly remarked upon, and then the cases of poisoning by aconite root which had been recorded in this country during the last few years were divided under two heads—(1.) Cases of an over-dose of some preparation given as medicine. This was generally the tincture. (2.) Cases in which the root had been eaten by mistake as an article of diet.

1. Four cases of poisoning by the tincture have been recorded during the last five years. Others are said to have happened. Of these four persons, two died from taking one fluid drachm of Fleming's tincture; one died from the effects of twenty-five mimims of the tincture of the Lond. Pharm.; a fourth barely escaped from a dose of fifteen mimims of the same. Two of these cases were attributable to carelessness in dispensers, one to ignorance of the power of the preparation. The author made three recommendations with the hope of obviating such accidents for the future: Firstly, to carry out the plan of the Dublin College, requiring druggists to keep all dangerous preparations in square or angular bottles, and the others in round bottles. Secondly, that the tincture of aconite, if used, should be made of one uniform strength, (as far as possible.) At least three different tinctures are in use in this country. Or, thirdly, that it would be still better, to discard this tincture altogether, as an uncertain preparation, substituting for it a solution of aconitina of one fixed strength, containing 1–600th of a grain in each drop.

2. In nearly all the cases in which aconite root had been eaten as food, the singular error has been made of mistaking it for the root of the common horseradish, and so scraping and eating it with roast beef. The author read accounts of four cases of this fatal error, which have occurred of late years, the last of them being the recent tragedy at Dingwall, in Scotland, when three gentlemen lost their lives. To show that such mistakes could not be committed by careful persons, specimens and drawings of horseradish and aconite root were exhibited and compared. The acid but not pungent taste of the aconite parings, and the pinkish colour which they assume when exposed to the air, were amongst the points noticed.

The author, having noticed a singular case of poisoned coffee, proceeded to state that there were two ways in which a case of aconite

poisoning could be recognised: (1.) By the symptoms, which are very characteristic. (2.) By obtaining some of the poisoning principle, by a chemical process, from the contents of the stomach and matters vomited, and then trying its action upon small animals, or on the tongue, &c. There are no distinctive chemical tests for it, but 1–300th of a grain of the alkaloid (aconitina) would kill a mouse, and 1–1000th placed on the tip of the tongue would cause tingling and numbness.

With regard to the treatment of such cases of poisoning, Dr. Headland recommended the immediate and free administration of animal charcoal, mixed with water. This to be followed by a zinc emetic, then by brandy and ammonia. The charcoal has the power of retaining and separating the poisonous alkaloid, and if we have rendered help in time, the patient may perhaps be saved.—*Lancet, March* 22, 1856, *p.* 315.

172.—*Tests for Strychnia.*—[Mr. Maxwell Simpson, in a note to the editor of the 'Dublin Hospital Gazette,' says:]

As two important cases of supposed poisoning by strychnia will shortly be tried in England, I think it right to make it publicly known that strychnia is not the only substance that will produce a purple colour when brought into contact with a mixture of bichromate of potash and oil of vitriol, the test usually relied on for the detection of this poison. I have found that naphthalidam, an organic base derived from naphthalin, will produce, as might have been expected, an exactly similar colour when tested with the same mixture. The colour is best brought out by making a mixture of equal volumes of oil of vitriol and a cold saturated solution of bichromate of potash, and bringing it, while still warm, into momentary contact with a particle of the naphthalidam.—*Dublin Hospital Gazette, April* 15, 1856, *p.* 95.

173.—ON POISONING BY STRYCHNINE.

[We have made the following short analysis of the Symptoms of Poisoning by Strychnine, *which are known to have existed in several cases in the human subject*, as detailed in evidence at the late trial of William Palmer; and then we have given the symptoms which are said to have existed in Mr. J. P. Cook's case, in order that our readers may see not only the authenticated cases, but also compare them with the case of Cook. We think that when the reader has compared these cases, he will come to the conclusion that, independent of all chemical evidence, there can be no doubt that Cook's case was one of strychnine poisoning. The symptoms of each case are given nearly in the words of the different witnesses.]

. Case of Agnes Sennett, or French.

She took three-quarters of a grain of strychnine in pills, and began in 20 minutes. There was continuous retraction of the mouth, the face suffused and red, the pupils dilated. Head bent back, spine curved, muscles rigid, and hard like a board ; arms stretched out and rigid ; hands clinched, severe paroxysms every few seconds ; no lock-jaw as in ordinary tetanus, could open her mouth and swallow. Died in about one hour and a quarter after taking the poison, quite conscious all the time, and seemed not to breathe from tetanic rigidity.

Post mortem.—Hands not clinched after death, but semibent. Heart distended, stiff, and empty. (Dr. Corbett, and Dr. Watson, Glasgow.)

2. Case of Mrs. Smyth.

Took the strychnine in solution—about 3 grains. The symptoms appeared in ten or fifteen minutes. She began by violently ringing the bell, first affected with spasms, then screamed loudly ; teeth clinched ; asked to have the arms and legs held straight, which were drawn up ; continued to scream in agony ; feet turned inwards. The last words were "turn me over," and she then died very quietly, one hour and a quarter after taking the poison, conscious all the time. The hands were much bent, feet contracted, and turned inwards ; soles of the feet hollowed up and toes contracted ; the inner edge of each foot was turned up ; a remarkable rigidity about the limbs.

Post mortem.—The contraction of the feet continued three days after death, the rest of the body not quite so rigid. No trace of disease. Heart contracted and perfectly empty. (Caroline Hickson, and Mr. Taylor, Romsey.)

3. Case of Mrs. Dove.

Complained first of her back ; head thrown back, body stretched out. Eyes drawn aside and staring, prickings in the legs, and twitchings in the muscles and hands, like galvanic shocks. Wished to have her legs and arms rubbed, which were rigidly extended in the intervals between the spasms. Body stiff immediately after death. (Mrs. Whitham.) Convulsive twitchings of the arms ; able to swallow.

Post mortem.—No disease in any part of the body, which could account for death. Forty-two hours after death the hands bent and fingers curved ; feet strongly arched ; lungs congested. Muscles of the trunk dark and soft, forty-two hours after death. Effusion in the brain ; serum tinged with blood in the membranes of spinal cord ; membranes of spinal cord congested considerably. (Mr. Morley, Leeds.)

The muscles of the body were not in the least rigid forty-two hours after death; muscles of the head, neck, forearms, &c., were rigid. Fingers curved, and feet somewhat arched. (Mr. Nunneley, Leeds.)

4. Case of Mr. Clutterbuck.

He took only a quarter of a grain, and ultimately recovered. He was stiffened in every limb and his head drawn back. He desired to be moved, turned, and rubbed. He snapped at the spoon, conscious all the time. He survived the attack. (Mr. Moore.)

5. Another case of Mr. Nunneley's.

Post mortem.—Thirty-two hours after death—first saw the woman twelve hours after death. Appearances of the body substantially similar to the case of Mrs. Dove.

6. Two other Cases of Recovery reported by Mr. Nunneley.

The quantity taken was only one-sixth of a grain in each case—taken in solution. The symptoms came on much earlier than when taken in pills, viz., in a few minutes, as in Mrs. Smyth's case. There was in both cases a *want of power to control the muscles*, manifested by twitchings, rigidity, and cramp, more violent in the legs than elsewhere.

7. Mr. J. P. Cook's Case.

Asked to have his back rubbed; stiffness of the muscles of the neck; loud screams; convulsions for five or ten minutes, with stiffness of the limbs; quite sensible the whole time. The heart gradually weakened, and he died quietly in about fifteen minutes from the first attack, and about one hour and a quarter from the taking of the poison. The hands clinched both before and after death; head and neck before death bent backwards; after death the body twisted or bowed, so that it would have rested on the heels and head. Just before death he desired to be *turned over*.

Post mortem.—Lungs healthy but congested; brain healthy; no extravasation and no serum; heart contracted and empty. (Dr. Harland.)

He sat up and beat the bed clothes with both arms, which were stretched out; sense of suffocation; jumping or jerking about his head, neck, and body; balls of the eyes projected. Requested to have one hand rubbed which was then stiff and stretched out, and did not move, but was half shut; the arm and body whilst being rubbed, seemed to twitch. The body continued to jump and jerk. He snapped at the spoon and got it fast between his teeth, and bit it hard; when snapping, he threw forward his head and neck. He swallowed a draught and vomited it; it smelt like opium. (Elizabeth Mills.)

[Now the above are the symptoms detailed by the respective witnesses in several cases of poisoning by strychnine in the human subject: and where we have cases related with such particularity in the human body, we need not go to experiments on animals to be enlightened on this important point. Neither do we think that if, in the case of Cook, the strychnine had been actually found, it would have made the case of poisoning much more clear. His symptoms bore such a striking similarity to those other cases in which strychnine was known to have been taken, and such a striking dissimilarity from all other diseases, except tetanus, that we have no hesitation in saying the verdict of the jury was a just one.

If we look over these cases we shall find that at first there was a *certain degree of voluntary motion*, enabling them to *move* and ring the bell—*to move* the *hands*—*to swallow*—*to talk*—they asked *to be rubbed and moved.* The accession of convulsions came on *suddenly*, without promonitory symptoms, *they screamed*, and death took place in about one hour and a half after taking the poison. And yet one of the medical witnesses for the defence, who must have heard all these symptoms detailed in court, actually expresses himself as follows:—"Cook had more power of voluntary motion than I have observed in animals under the influence of the poison. He sat up in bed, and moved his hands about freely, swallowed, talked, and asked to be rubbed and moved, *none of which if poisoned by strychnia could he have done.* The sudden accession of the convulsions is another reason for believing that they were not produced by strychnia. Other reasons for believing that the convulsions were not produced by strychnia, are, their sudden accession without the usual premonitory symptoms, the length of time which had elapsed between their commencement and taking of the pills, and the screaming and vomiting." Any comment on this evidence is unnecessary, and might be complained of: we therefore desist, and leave it to the judgment of our professional brethren.

Another medical witness for the defence, says, "It is not at all probable that a person after taking strychnia could *pull a bell violently.* Any movement would excite the nervous system, and bring on spasms. It is not likely that a person in that state could bear *to have his neck rubbed.*" Now Mrs. Smyth *did* pull the bell violently after she had taken the poison, and Mrs. Dove desired her arms and legs to be *rubbed.* So much for facts against theory.

A third medical witness for the defence states, "a dose of strychnia sufficient to destroy life would hardly require one hour and a half for its absorption." Now Agnes Sennett died in about one hour and a quarter, and Mrs. Smyth in about the same time, a little more or less. So that we should place very little reliance on the judgment of these witnesses with respect to the action of the poison on the human subject. They may be very good experimenters on dogs and cats, but

seem to be very little acquainted with the action of strychnine on the human body.

Let us just contrast this evidence for the defence with that of Dr. Todd, and Sir Benj. Brodie, whose opinions will always carry the greatest weight in this country.]

Dr. Todd.—"In my opinion the term tetanus ought not to be applied to disease produced by poisons, but I should call the symptoms tetanic, in order to distinguish the character of the convulsions. I have observed cases of traumatic tetanus. Except that in all such cases there is some lesion, the symptoms are precisely the same as those of idiopathic tetanus. The disease begins with stiffness about the jaw. The symptoms gradually develope themselves and extend to the muscles of the trunk."

When the disease has begun is there any intermission?—"There are remissions, but they are not complete; only diminutions of the severity of the symptoms, not a total subsistence. The patient does not express himself as completely well, quite comfortable. I speak from my own experience."

What is the usual period that elapses between the commencement and the termination of the disease?—"The cases may be divided into two classes. Acute cases will terminate in three or four days, chronic cases will go on as long as from 19 to 22 or 23 days, and perhaps longer. I do not think that I have known a case in which death occured within four days. Cases are reported in which it occurred in a shorter period. In tetanus the extremities are affected, but not so much as the trunk. Their affection is a late symptom. The locking of the jaw is an early one. Sometimes the convulsions of epilepsy assume somewhat of a tetanic character, but they are essentially distinct from tetanus. In epilepsy the patient always loses consciousness. Apoplexy never produces tetanic convulsions. Perhaps I may be allowed to say, that when there is effusion of blood upon the brain, and a portion of the brain is involved, the muscles may be thrown into short tetanic convulsions. In such case the consciousness would be destroyed. Having heard described the symptoms attending the death of the deceased, and the *post mortem* examination, I am of opinion that in this case there was neither apoplexy nor epilepsy.

"There are poisons which will produce tetanic convulsions. The principal of those poisons are nux vomica, and those which contain as their active ingredients, strychnine and bruccia. I have never seen human life destroyed by strychnine, but I have seen animals destroyed by it frequently. The poison is usually given in a largish dose in those cases, so as to put an end to the sufferings and destroy life as soon as possible. I should not like to give a human subject a quarter of a grain. I think that it is not unlikely that half a grain might destroy life; and I believe that a grain certainly would. I think that half a grain would kill a cat. The symptoms which would ensue upon

the administration of strychnine when given in solution—and I believe that poisons of that nature act more rapidly in a state of solution than in any other form—would develope themselves in ten minutes after it was taken, if the dose were a large one; if not so large, they might be half an hour or an hour before they appeared. Those symptoms would be tetanic convulsions of the muscles, more especially those of the spine and neck; the head and back would be bent back, and the trunk would be bowed in a marked manner; the extremities also would be stiffened and jerked out. The stiffness, once set in, would never entirely disappear; but fresh paroxysms would set in, and the jerking rigidity would reappear; and death would probably ensue in a quarter of an hour or so. The difference between tetanus produced by strychnine and other tetanus is very marked. In the former case, the duration of the symptoms is very short, and instead of being continuous in their development, they will subside if the dose has not been strong enough to produce death, and will be renewed in fresh paroxysms; whereas in other descriptions of tetanus the symptoms commence in a mild form, and become stronger and more violent as the disease progresses. The difficulty experienced in breathing is common alike to tetanus, properly so called, and to tetanic convulsions occasioned by strychnine, arising from the pressure upon the respiratory muscles. I think it is remarkable that the deceased was able to swallow, and that there was no fixing of the jaw, which would have been the case with tetanus proper, resulting either from a wound or from disease. From all the evidence I have heard, I think that the symptoms which presented themselves in the case of Mr. Cook arose from tetanus produced by strychnine."

Cross-examined by *Mr. Grove, Q.C.*—"There are cases sloping into each other, as it were, of every grade and degree, from mild convulsions to violent tetanic spasms. I have published some lectures upon diseases of the brain, and I adhere to the opinion there expressed, that the state of a person suffering from tetanus, is identical with that which strychnine is capable of producing. In a pathological point of view, an examination of the spinal cord shortly after death, in investigating supposed deaths from strychnine, is important. The signs of decomposition, however, could be easily distinguished from the evidences of disease which existed previously to death; but it would be difficult to distinguish in such a case whether mere softening resulted from decomposition or from pre-existing disease. There is nothing in the *post mortem* examination which leads me to think that deceased died from tetanus proper. I think that granules upon the spinal cord, such as I have heard described, would not be likely to cause tetanus. I have not heard of cases treated by Mr. Travers. In animals to which strychnine has been administered, I cannot say that I have observed what you call an intolerance of touch; but by touching them the spasms are apt to be excited. That sensibility to touch continues as long as the operation of the poison continues. I have

examined the interior of animals that have been killed by strychnine; but I have not observed in such cases that the right side of the heart was usually full of blood. It is some years since I made such an examination; but I am able, nevertheless, to speak positively as to the state of the heart. It was usually empty on both sides. I do not agree with Dr. Taylor, or other authorities, in the opinion that in cases of tetanus animals died asphyxiated. If they did, we should invariably have the right side of the heart full of blood, which is not the case. I think that the term asphyxiated, or suffocated, is often very loosely used. I know from my reading that morphia sometimes produces convulsions; but I believe that they would be of an epileptic character. I think that the symptoms from morphia would be longer deferred in making their appearance than from strychnine; but I cannot speak positively on the point. Morphia, like strychnine, is a vegetable poison. I have not observed in animals the jaw fixed after the administration of strychnine."

Re-examined by the *Attorney-General*.—"Whatever may be the true theory as to the emptiness of the heart after strychnine, I should say that the heart is more ordinarily empty than filled after tetanus. I think that the heart would be more contracted after strychnine than in ordinary tetanus. I do not believe that a medical practitioner would have any difficulty in distinguishing between ordinary convulsions and tetanic convulsions."

Sir Benjamin Brodie.—"I have heard the symptoms which accompanied the death of Mr. Cook, and I am of opinion that so far as there was a general contraction of the muscles, they resembled those of traumatic tetanus; but as to the course those symptoms took they were entirely different. I have attended to the detailed description of the attack suffered by Mr. Cook on the Monday night, its ceasing on Tuesday, and its renewal on the Tuesday night. The symptoms of traumatic tetanus always begin, so far as I have seen, very gradually, the stiffness of the lower jaw being, I believe, invariably, the symptom first complained of—at least, so it has been in my experience. The contraction of the muscles of the back is always a later symptom—generally much later. The muscles of the extremities are affected in a much less degree than those of the neck and trunk, except in some cases where the injury has been in a limb, and an early symptom has been spasmodic contraction of the muscles of that limb. I do not myself recollect a case of ordinary tetanus in which occurred that contraction in the muscles of the hand, which I understand was stated to have taken place in this instance. Again, ordinary tetanus rarely runs its course in less than two or three days, and often is protracted to a much longer period. I knew one case only in which the disease was said to have terminated in so short a time as twelve hours; but probably in that case the early symptoms had been overlooked. Again, I never knew the symptoms of

ordinary tetanus to last for a few minutes, then subside, and then come on again after twenty-four hours. I think that these are the principal points of difference which I perceived between the symptoms of ordinary tetanus and those which I have heard described in this case. I have not witnessed tetanic convulsions from strychnine on animal life. I do not believe that death, in the case of Mr. Cook, arose from what we ordinarily call tetanus—either idiopathic or traumatic. I never knew tetanus result from a sore throat or from chancre, or from any other form of syphilitic disease. The symptoms were not the result either of apoplexy or of epilepsy. Perhaps I had better say at once that I never saw a case in which the symptoms that I have heard described here arose from any disease. When I say that, of course I refer not to particular symptoms, but to the general course which the symptoms took."—*The "Times" Report of the Trial of William Palmer, for Poisoning Mr. J. P. Cook, at Rugeley, pp.* 35—60.

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D. I. ROEBUCK, PRINTER, 14, TRINITY STREET, LEEDS.